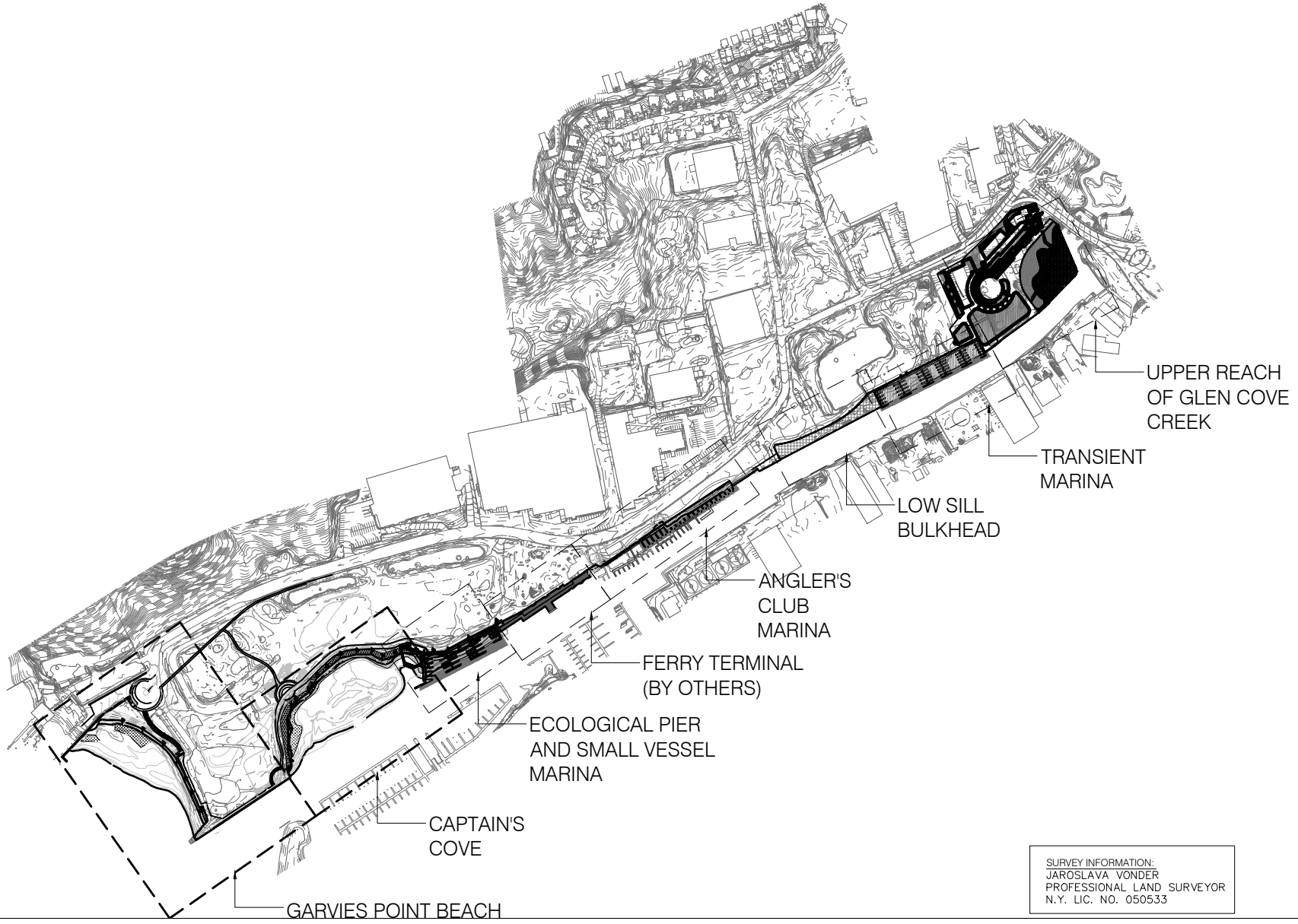
Appendix A –Waterfront Site Plans Prepared by Advanced American Engineering, PLLC, December 2014



SURVEY INFORMATION:
JAROSLAVA VONDER
PROFESSIONAL LAND SURVEYOR
N.Y. LIC. NO. 050533

1	SITE PLAN - PROPOSED REDEVELOPENT
	1" = 600'-0"

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GLEN COVE CREEK WATERFRONT REDEVELOPMENT PROJECT

GARVIES POINT

CITY OF GLEN COVE
NASSAU COUNTY, NEW YORK

SHEET NUMBER

G-000

NOTES:

1. EXCEPT IN CAPTAIN'S COVE, LANDWARD LIMIT OF TIDAL WETLANDS IS EQUIVALENT TO THE LINE OF MEAN HIGH WATER (MWH) AS DELINEATED 5/11/2004 BY C.W. BOWMAN AND VERIFIED 12/9/2008 BY W.P. BOWMAN AND K. RISOTTO, LAND USE ECOLOGICAL SERVIES, INC. IN CAPTAIN'S COVE, LANDWARD LIMIT OF TIDAL WETLANDS IS EQUIVALENT TO THE LIMIT OF EXISTING VEGETATED INTERTIDAL/HIGH MARSH AS DELINEATED 5/11/2004 BY C.W. BOWMAN AND VERIFIED 12/9/2008 BY C.P. BOWMAN AND K. RISOTTO, LAND USE ECOLOGICAL SERVICES, INC.
2. VERTICAL DATUM IS NAVD88. HORIZONTAL DATUM IS NAD83.
3. DREDGE AREAS TO HAVE A MAXIMUM SIDE SLOPE OF 1:5.

1. NYSDEC JURISDICTIONAL LIMITS, LABELED AS: NYSDEC ART. 25 (TIDAL WETLANDS) JURISDICTIONAL LIMITS AS CONFIRMED BY NYSDEC 6/11/2010.
2. SPRING HIGH WATER LINE (SHW) AT ELEVATION 6.0' NAVD
3. MEAN HIGH WATER LINE (MHW) AT ELEVATION 4.4' NAVD
4. MEAN LOW WATER LINE (MLW) AT ELEVATION -2.8' NAVD
5. WHERE NOT SPECIFIED ON SHEET, THE TIDAL WETLAND BOUNDARY, SHW, MHW, AND MLW LINE ARE EQUIVALENT TO THE EXISTING BULKHEAD.

REFERENCES:

1. BOUNDARY INFORMATION AS PER PLAN ENTITLED "ALTA/ACSM LAND TITLE SURVEY" FOR GLEN ISLE - GLEN COVE WATERFRONT REDEVELOPMENT, CITY OF GLEN COVE, NASSAU COUNTY, NEW YORK PREPARED BY PAULUS SOKOLOWSKI & SARTOR, PC, DATED 9/27/2012. HORIZONTAL DATUM IS NORTH N.Y.S.P.C.S.
2. TOPOGRAPHIC AND EXISTING CONDITION INFORMATION AS PER AERIAL PHOTOGRAPHY PREPARED BY ATLANTIS AERIAL SURVEY CO., INC., DATED 3/23/2012. HORIZONTAL DATUM IS NAD 83/07. VERTICAL DATUM IS NAVD 88.
3. PARTIAL SURVEY OF EXISTING FERRY PARCEL PREPARED BY PAULUS SOKOLOWSKI & SARTOR, PC, PER FIELD SURVEY OF SEPTEMBER 2012.
4. LIMITS OF TIDAL WETLANDS PREPARED BY LAND USE ECOLOGICAL SERVICES INC., DATED 5/11/2004 AND VERIFIED 12/9/2008.

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GARVIES POINT

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G-001

PLANTING SPECIFICATIONS - WETLAND & SHORELINE RESTORATION AREAS

Planting Specifications for the wetland and shoreline restoration areas at Captain's Cove, Renaissance Park, and the Upper Reach of Glen Cove Creek are provided below.

Plant Species and Size

Upland Shrubs (3-4' in height, 2 gallon containers on 12' centers):

Northern Bayberry	*Morella pensylvanica*
Groundsel Bush	*Baccharis halimifolia*
Beach Plum	*Prunus maritima*

Upland Herbaceous Plants (2" plugs on 18" centers):

Switch Grass	*Panicum virgatum*
Seaside Goldenrod	*Solidago sempervirens*
Butterfly Milkweed	*Asclepias tuberosa*
Smooth Aster	*Aster laevis*

High Marsh Plants (2" plugs on 18" centers):

Salt Hay	*Spartina patens*
Spike Grass	*Distichlis spicata*

Low Marsh Plants (2" plugs on 18" centers):

Smooth Cordgrass	*Spartina alterniflora*

Whole Marsh Sods (4-9 sq. ft. sods distributed evenly throughout receiving areas):

Planting Windows

Low Marsh Sod Transplanting: March 1 to June 30
Low Marsh, High Marsh, and Upland Slope Plugs: Spring Season April 15 to June 15
Upland Slope Shrubs: April 1 to May 15

Elevation Requirements

Upland Slope Plants: > 6.0'
High Marsh Plants: 4.4 - 6.0'
Low Marsh Plants: 1.0' - 4.4'

Planting Methods and Specifications

Site Preparation

Planting substrates shall be free from debris, noxious weeds, toxic substances or other materials harmful to plant growth. Prior to commencement of planting operations, the Contractor shall complete a Soils Test in accordance with ASTM D 5268 and ASTM D 4972 to determine the pH, organic matter, soluble salt, and nutrient contents, as well as soil texture, of the planting substrates. Separate sample collections shall occur for each planting area, and be random over the separate areas.

Prior to the commencement of the planting operations, the Contractor shall verify that finished grades are as indicated on the plans, and the finishing and compaction requirements have been completed in accordance with design specifications. After grading is complete, heavy equipment is prohibited from entering planting areas.

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G-002

Herbivory Fence

Herbivory Fence shall be installed after final grades in the marsh areas and upland slope planting areas are completed. Herbivory Fence shall be installed prior to or concurrently with installation of the low and high marsh and upland slope plants. Under no circumstances are these plants to be planted outside the containment of a satisfactorily installed Herbivory Fence.

Fence Materials shall be as follows:
Herbivory Fence shall be made of the following materials:

Wood Stakes on 10' centers: Untreated hardwood lumber, pointed-tip stakes. Stakes must be free from large knots that weaken the strength of the stake.

Fence Fabric: 6-ft high panel deer exclusion fence, UV-stabilized, minimum 600 lbs/ sf breaking strength, or equivalent item

Fabric may be attached to wood stakes using heavy-duty zip-ties or 1.5 inch hot dipped galvanized u-nails.

Nylon twine: Braided nylon mason's line #18 gauge cord with tensile strength of 150 pounds.

Plastic flagging tape or Mylar tape

Herbivory Fence shall be installed after final grades in the marsh and upland slope planting areas are completed and approved by. Herbivory Fence shall be installed prior to or concurrently with installation of the marsh and upland plants. Under no circumstances are these plants to be planted outside the containment of a satisfactorily installed Herbivory Fence.

Stakes shall be pounded vertically into the substrate. Herbivory Fence shall be installed a minimum of 18 inches away from the first row of wetland planting. At least one stake shall be also be installed in the interior of each cell to provide support for nylon twine and flagging tape. Planting cells should be approximately 50' x 50' in size. The fence fabric shall be secured at the top, middle, and bottom to the wood stakes with plastic ties. All fence shall be placed so that the bottom of the fence lies entirely on the substrate. Upon completion of the outer perimeter of each cell and the installation of interior stakes, nylon twine shall be strung across the tops of the planting areas from the perimeter stakes to the interior stakes. The nylon twine shall be wrapped around the top of the stake several times. The twine shall be strung to the next stake and wrapped again before continuing on to the next stake. Mylar or plastic flagging, trailing at least 12 inches of tape from the tie, shall be tied to the top of each hardwood stake (both perimeter and interior). The flagging shall also be tied along the interior nylon twine. Stringing of the interior twine and tying of flagging may be done after planting in a cell is completed; however, no planted area is to be left exposed without interior lines and flagging at the end of any workday. No unused strands of nylon twine, fence fabric, packaging materials, wood stakes or any other construction debris shall be left on the Project Site after fence installation and guarantee maintenance has been completed. Herbviory fencing may be removed after two growing seasons if 85% coverage/survivorship is attained.

Plant Material

Plants shall be well-shaped, well-grown, vigorous plants having healthy and well branched root systems. Plants shall be free from disease, harmful insects and insect eggs, sun-scald injury, disfigurement, and abrasion. Plants shall be free of shock or damage to branches, trunks or root systems that may occur during digging and preparation for shipment, method of shipment or actual shipment. Marsh plants shall be acclimated to saline conditions (20 ppt) when delivered and this needs to be maintain until they are planted. Plants should be from a suitable geographic location to ensure proper adaptation to Long Island climate and edaphic conditions. Plants shall not be injured in handling. Plants shall not be handled by the trunk or stems. Materials shall not be dropped from vehicles.

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G-003

Plant Installation

Plugs:

Plugs shall be planted at a depth of no more than 1 inch deeper than grown in the nursery. The top of the rootstock mass shall be a minimum of 1 inch below the soil surface. Plants shall be set plumb, with the root system oriented downward, and held in position until sufficient soil has been firmly placed by hand around the root mass. The plant shall be set even with or slightly higher than the surrounding grade. It shall be unacceptable to step on or around planting holes for the purposed of placing backfill. All planting shall be done "in the dry", i.e. while the tide is below the elevations of the area being planted.

Shrubs:

Plant pits shall be dug approximately 4 inches wider than the stock size. To encourage well-aerated soil to be available to the root system for favorable root growth, plant pits shall be constructed with sides sloping towards the base. Prior to placing a shrub, fertilizer shall be placed in the bottom of each plant pit. At no time shall fertilizer be placed in the water column or on top of the soil surface.

Fertilizers shall only be applied to upland shrubs. Shrub shall be a slow release tablet with a 20-10-5 nitrogen-phosphorus-potassium ratio. Fertilization rate shall not exceed manufacturer's specifications for appropriate-sized shrub.

Transplanting of Low Marsh Sods:

Marsh sods must be re-planted within 48 hours of being removed or uprooted. Marsh sods may not be transplanted when the ambient temperature are below 33 degrees Fahrenheit.

Any wrack and debris that has collected in the low marsh planting areas shall be thoroughly removed and disposed of in an offsite licensed facility prior to transplanting. These areas shall be raked clean and smooth. All transplanting shall be done "in the dry", i.e. while the tide is below the elevations of the area being planted. The Contractor shall schedule planting on a daily basis to account for the diurnal tidal cycles. Transplanting holes shall not be dug while planting substrates are inundated.

Sods shall be removed with caution by a long reach excavator position on top of the existing or reconstructed bulkhead. A Wetland Specialist shall be on-site to supervise transplanting of low marsh sods during all transplanting activities. Excavator bucket shall be guided to proper depth to ensure that roots and rhizomes remain intact. The long reach excavator may place a stockpile of sods and then have other machinery, such as a bobcat, move the hummocks to the final transplant area. Transplanted marsh sods shall be approximately 4-9 square feet in area. Holes for the sods shall be dug, so that the backfill goes no higher than the top of any mussels at the base of the plant material or no lower than the base of the mussel bed. If mussels are not present, the hummocks must be backfilled up to the maroon part of the stems of the *Spartina alterniflora*. The green part *Spartina alterniflora* stems should not be covered with backfill material. All backfill shall be smoothed, leveled and tamped so that there are no holes, divots or ponding around the sods. The grade immediately around the sods shall be re-checked no sooner than 48 hours after fill placement and any holes, divets or ponding must be fixed by adding fill or re-grading.

Maintenance

Upland plants shall be irrigated to ensure 1 inch of water per week through natural precipitation or supplemented by irrigation.

Any plants not installed on the day of delivery at the project site shall be stored and protected in designated areas from direct exposure to wind and sun. Any areas used for temporary storage of low and high marsh plants must be enclosed with perimeter Herbivory Fence to prevent grazing by waterfowl. Plants must not be stored on-site for more than 7 days before planting. If planting is delayed for more than 6 hours after delivery, the plants shall be watered.

Installed plants shall be maintained in a healthy growing condition. Maintenance of planting areas during construction shall include preventing the intrusion of weeds, grass, and other undesired vegetation, watering, and adjusting grades for settling. Grass, weeds, and other undesired vegetation shall be removed before reaching a maximum height of 12 inches.

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Any planted areas disturbed prior to completion of the guarantee/maintenance period of five growing seasons shall be repaired or reinstalled in accordance with the above specifications.

During the guarantee/maintenance period and until final acceptance, mechanical weed removal, hand pulling and herbicide application may be utilized to keep materials free from invasive vegetation.

During the guarantee/maintenance period, twice-yearly inspections (between May and August) to identify and remove any invasive vegetation [i.e. *Phragmites australis* (Common reed grass), *Ailanthis altissima* (Tree- of-Heaven), *Eleagnus angustifolia* (Russian olive), *Artemesia vulgaris* (mugwort) or other invasive species]. All plant vegetation and naturally recruiting native vegetation shall remain undisturbed. Mechanical weed removal shall consist of the removal of stems and rhizomes. Should invasives cover 5% or more of the site herbicide may be applied.

Necessary environmental permits must be obtained for any herbicide treatments. Herbicides shall be used with extreme caution in regard to safety and health. All manufacturer's safety instructions to avoid adverse impacts to human health must be followed. Any spray materials shall be applied with great care to avoid collateral damage to surrounding, native or planted vegetation. Applications to herbaceous invasives shall consist of a glyphosate based herbicide with a non-ionic surfactant. Applications to woody invasives shall consist of spraying the cut stump. All herbicides shall be applied by hand painting, back-pack sprayer or other controlled means to prevent damage to desirable planted vegetation. All spraying shall be done at times when wind does not exceed a velocity of five (5) miles per hour.

Survivorship Guarantee/Maintenance Period

As required by NYSDEC in their Salt Marsh Restoration and Monitoring Guidelines (Niedowski, 2000), applicant shall be responsible for ensuring 85 percent survival of the planted vegetation over five (5) growing seasons. Eighty-five percent (85%) survival shall not be required over five growing seasons if greater than 85% coverage of native vegetation is observed. The plant guarantee period shall commence on the date of the completion of construction, and shall end on October 15 on the fifth growing season. Plant losses due to attributed to herbivores, disease, drought, wind, or storm events shall not lower the minimum survival or coverage requirements. If replacement plants are installed at the end of the five year period to attain 85% survival or coverage, replacement plants shall be guaranteed for an additional growing season from the date of replanting. For low marsh sods, replacement will consist of a 3 ft by 3 ft plot with *Spartina alterniflora* plugs placed 6 inches on center, or a total of 36 plugs.

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GLEN COVE CREEK WATERFRONT REDEVELOPMENT PROJECT

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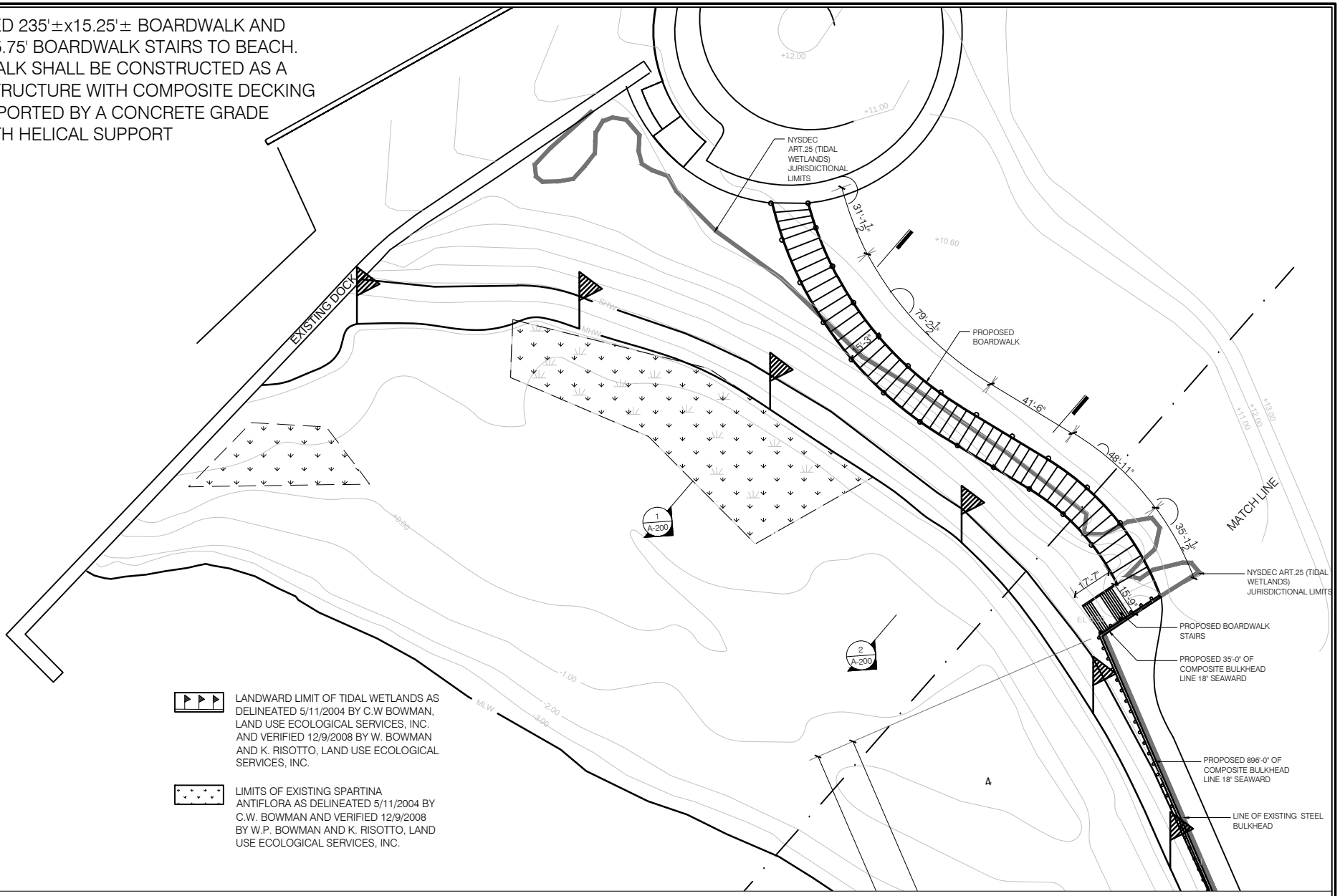
SHEET NUMBER

G-005

PROPOSED 235'±x15.25'± BOARDWALK AND 17.6' ±x15.75' BOARDWALK STAIRS TO BEACH. BOARDWALK SHALL BE CONSTRUCTED AS A WOOD STRUCTURE WITH COMPOSITE DECKING AND SUPPORTED BY A CONCRETE GRADE BEAM WITH HELICAL SUPPORT



1	GARVIES POINT BEACH PLAN
	1" = 60'-0"

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GLEN COVE CREEK WATERFRONT REDEVELOPMENT PROJECT

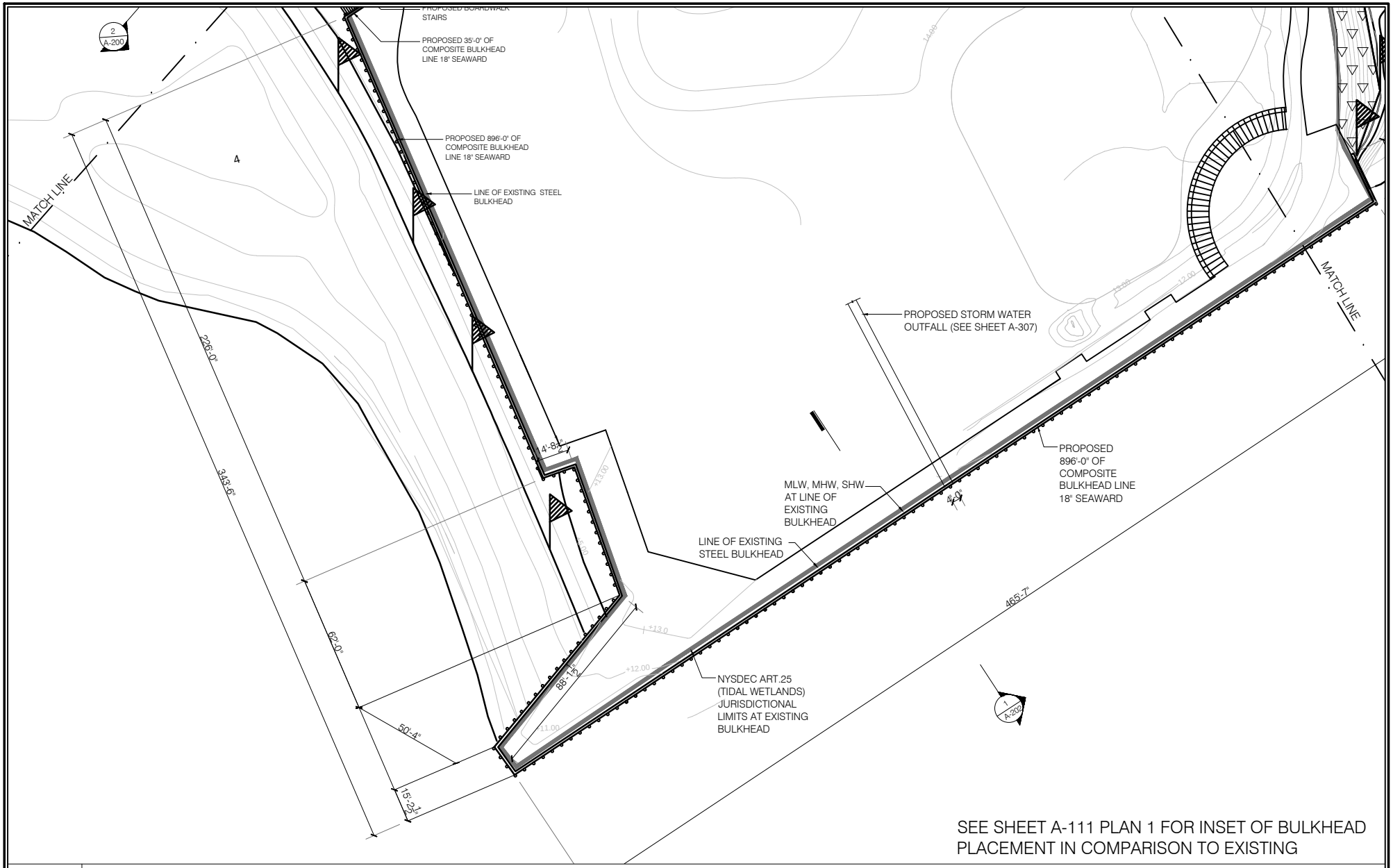
GARVIES POINT BEACH

CITY OF GLEN COVE

NASSAU COUNTY, NEW YORK

SHEET NUMBER

A-100



1 GARVIES POINT BEACH PLAN

1" = 60'-0"

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GARVIES POINT BEACH

CITY OF GLEN COVE

NASSAU COUNTY, NEW YORK

SHEET NUMBER

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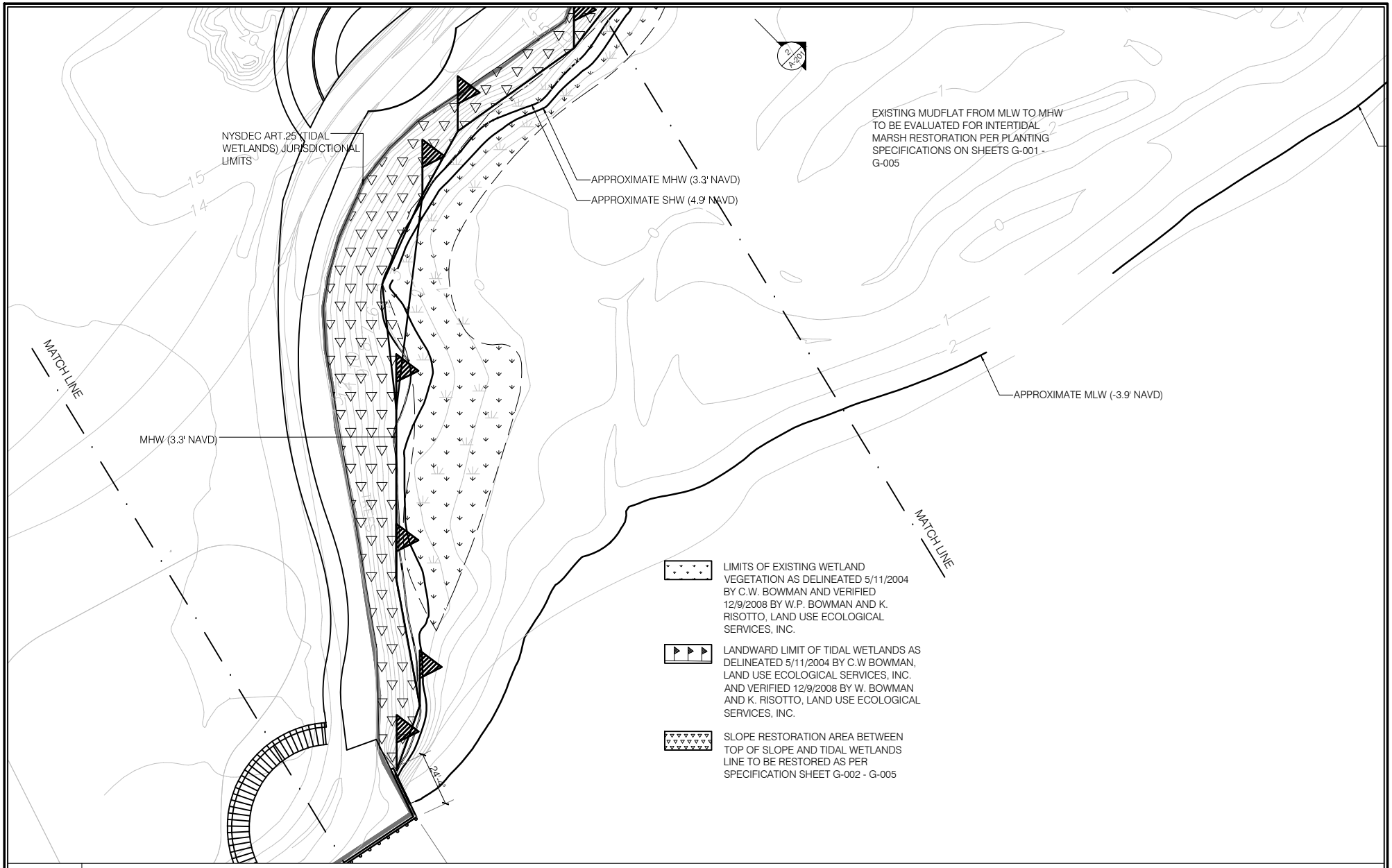

1	CAPTAIN'S COVE PLAN
	1" = 60'-0"

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GLEN COVE CREEK WATERFRONT REDEVELOPMENT PROJECT

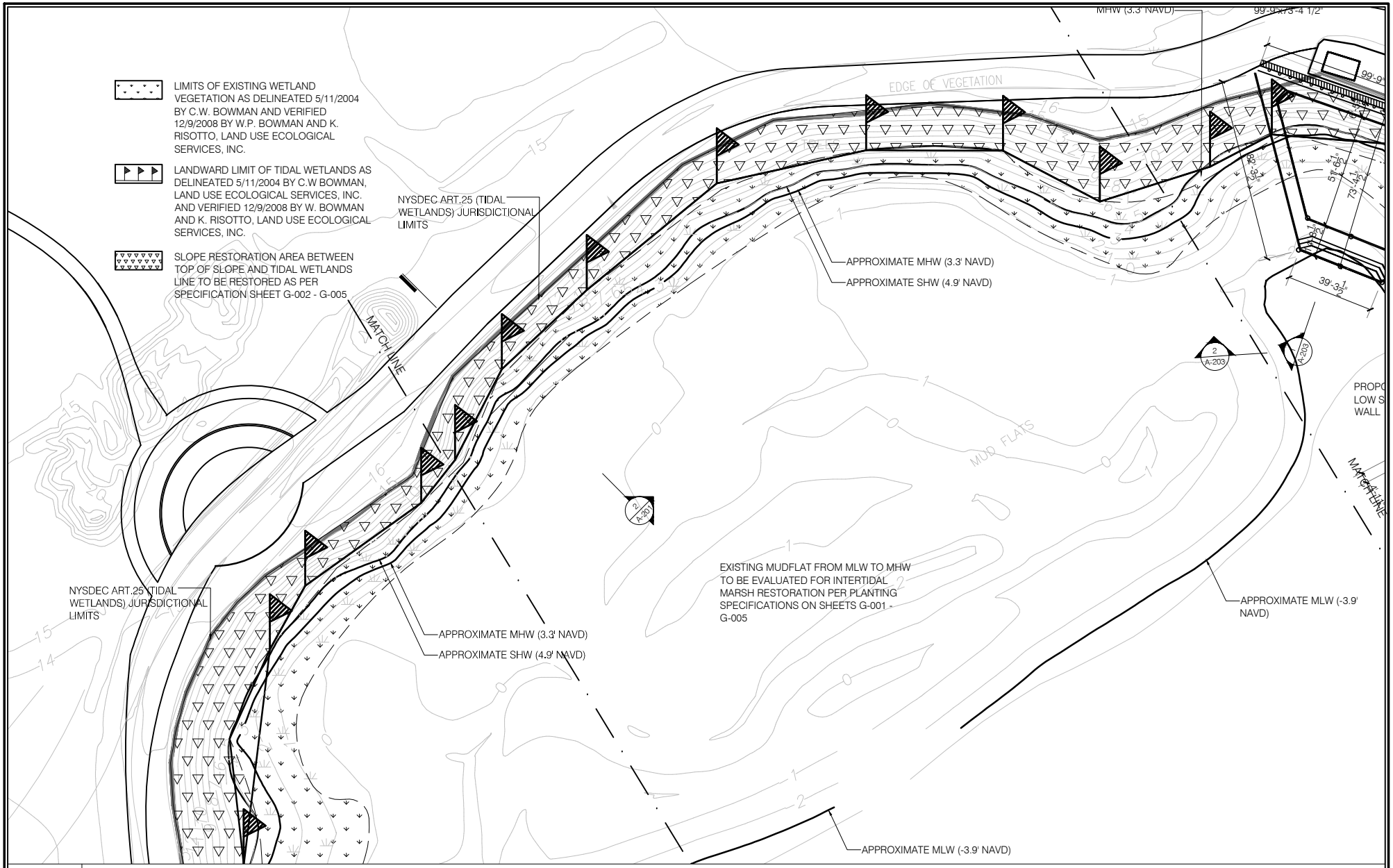
CAPTAIN'S COVE

CITY OF GLEN COVE

NASSAU COUNTY, NEW YORK

SHEET NUMBER

A-102



1	CAPTAIN'S COVE PLAN
	1" = 60'-0"

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GLEN COVE CREEK WATERFRONT REDEVELOPMENT PROJECT

CAPTAIN'S COVE

CITY OF GLEN COVE

NASSAU COUNTY, NEW YORK

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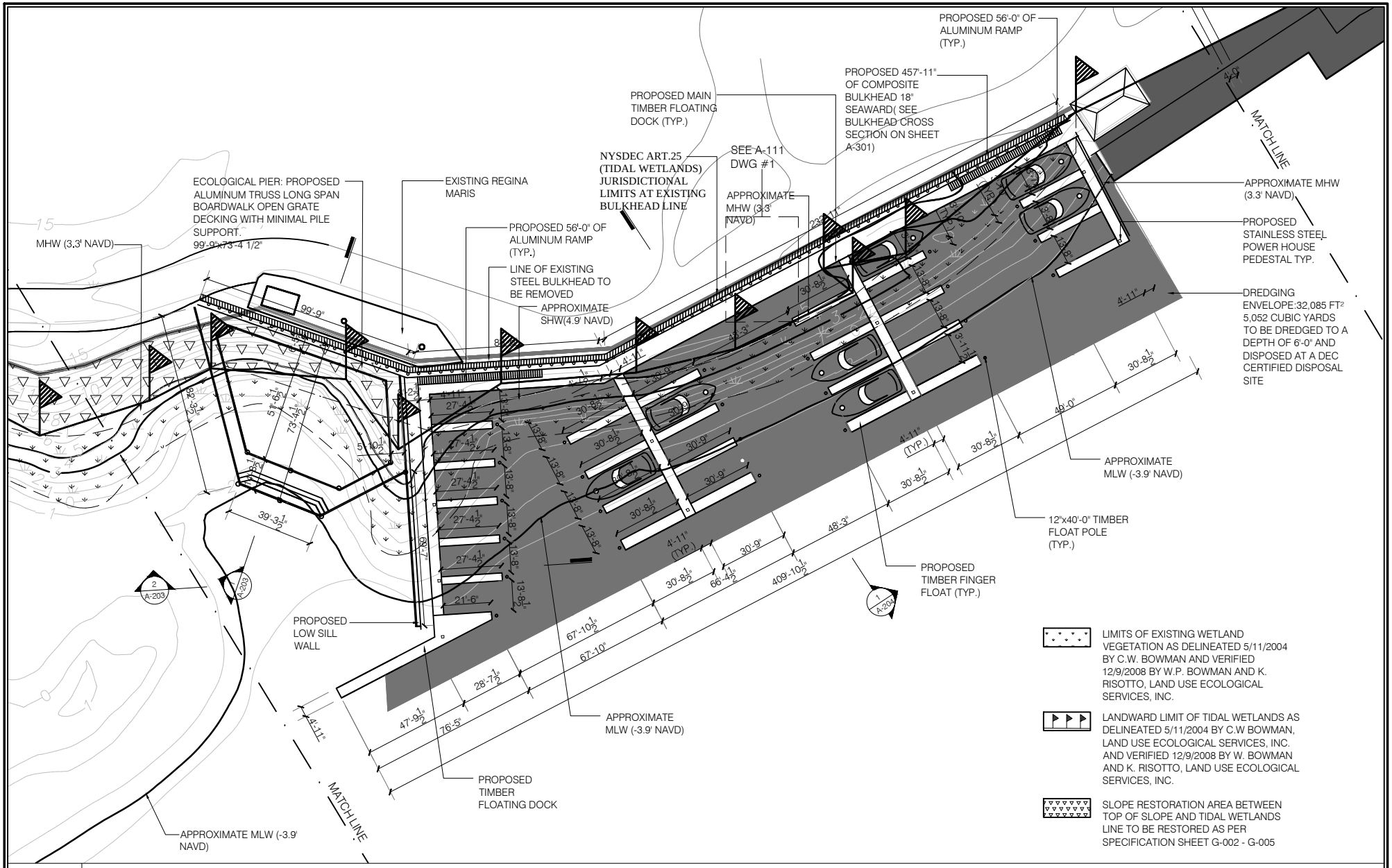
A-103



1 ECOLOGICAL PIER AND SMALL VESSEL MARINA PLAN

1" = 60'-0"

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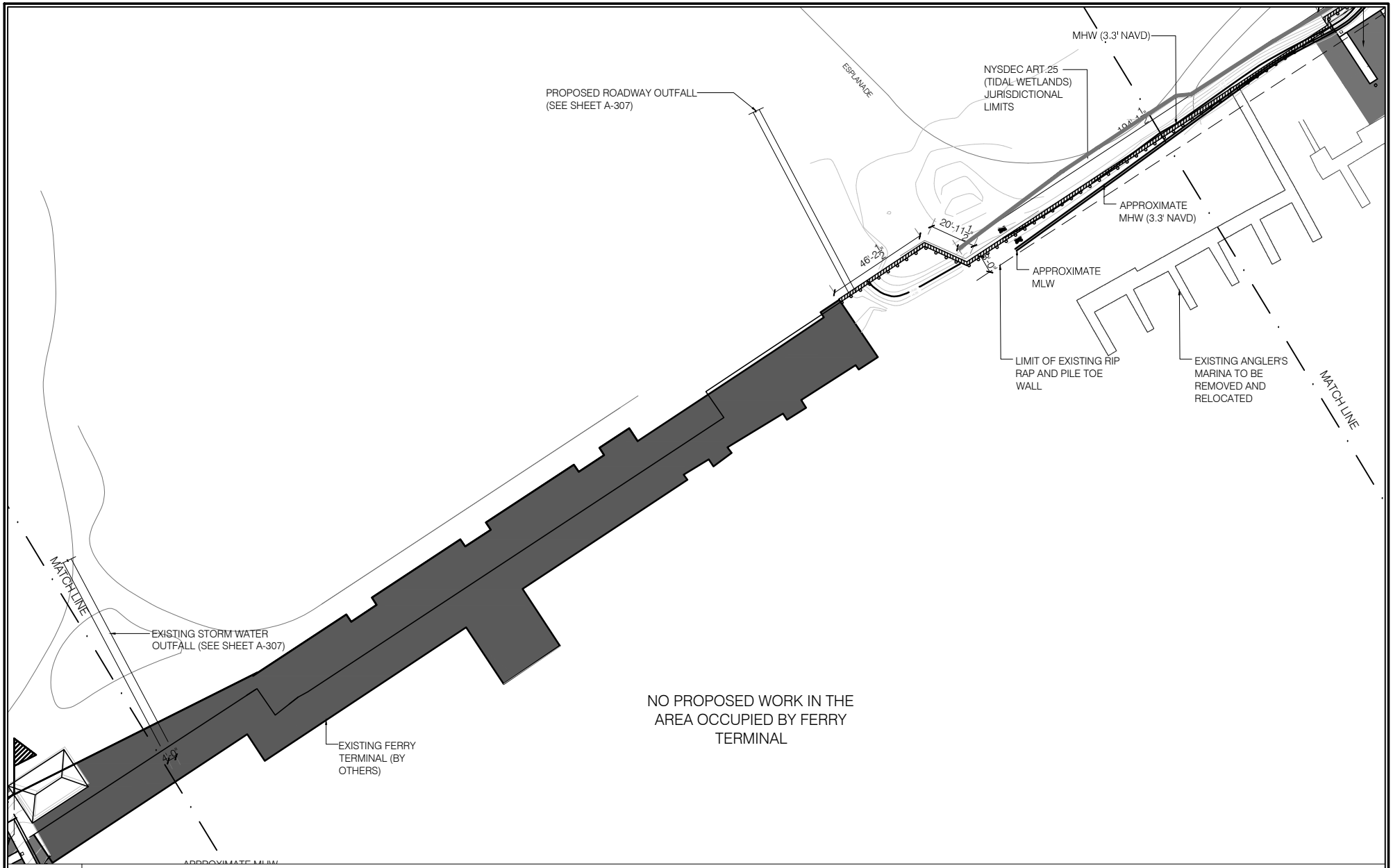
GLEN COVE CREEK WATERFRONT REDEVELOPMENT PROJECT

ECOLOGICAL PIER AND SMALL VESSEL MARINA

CITY OF GLEN COVE
NASSAU COUNTY, NEW YORK

SHEET NUMBER

A-104



1	ECOLOGICAL PIER AND SMALL VESSEL MARINA PLAN
	1" = 60'-0"

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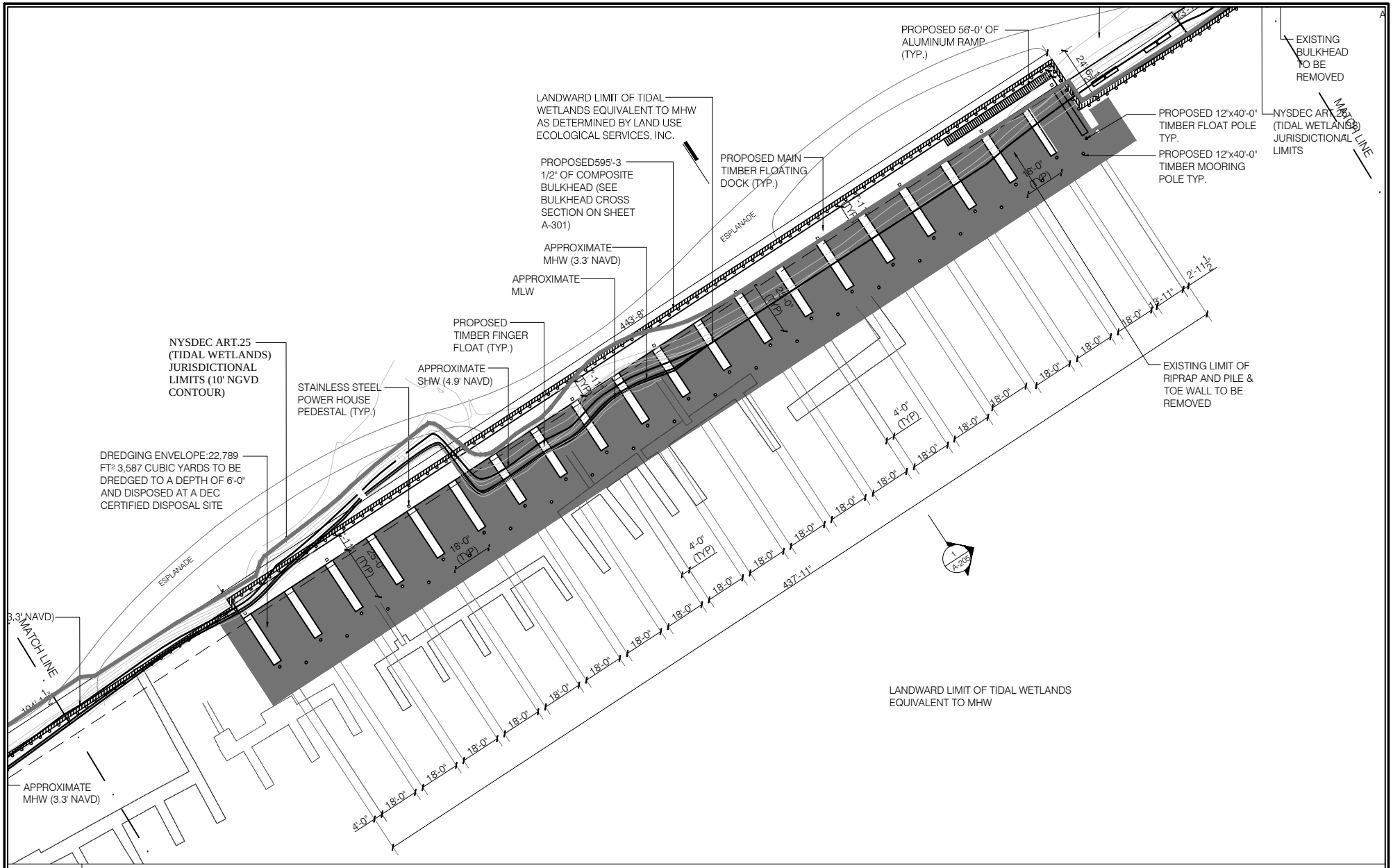
GLEN COVE CREEK WATERFRONT REDEVELOPMENT PROJECT

FERRY TERMINAL

CITY OF GLEN COVE
NASSAU COUNTY, NEW YORK

SHEET NUMBER

A-105



1 ANGLER'S CLUB MARINA PLAN

1" = 60'-0"

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GLEN COVE CREEK WATERFRONT REDEVELOPMENT PROJECT

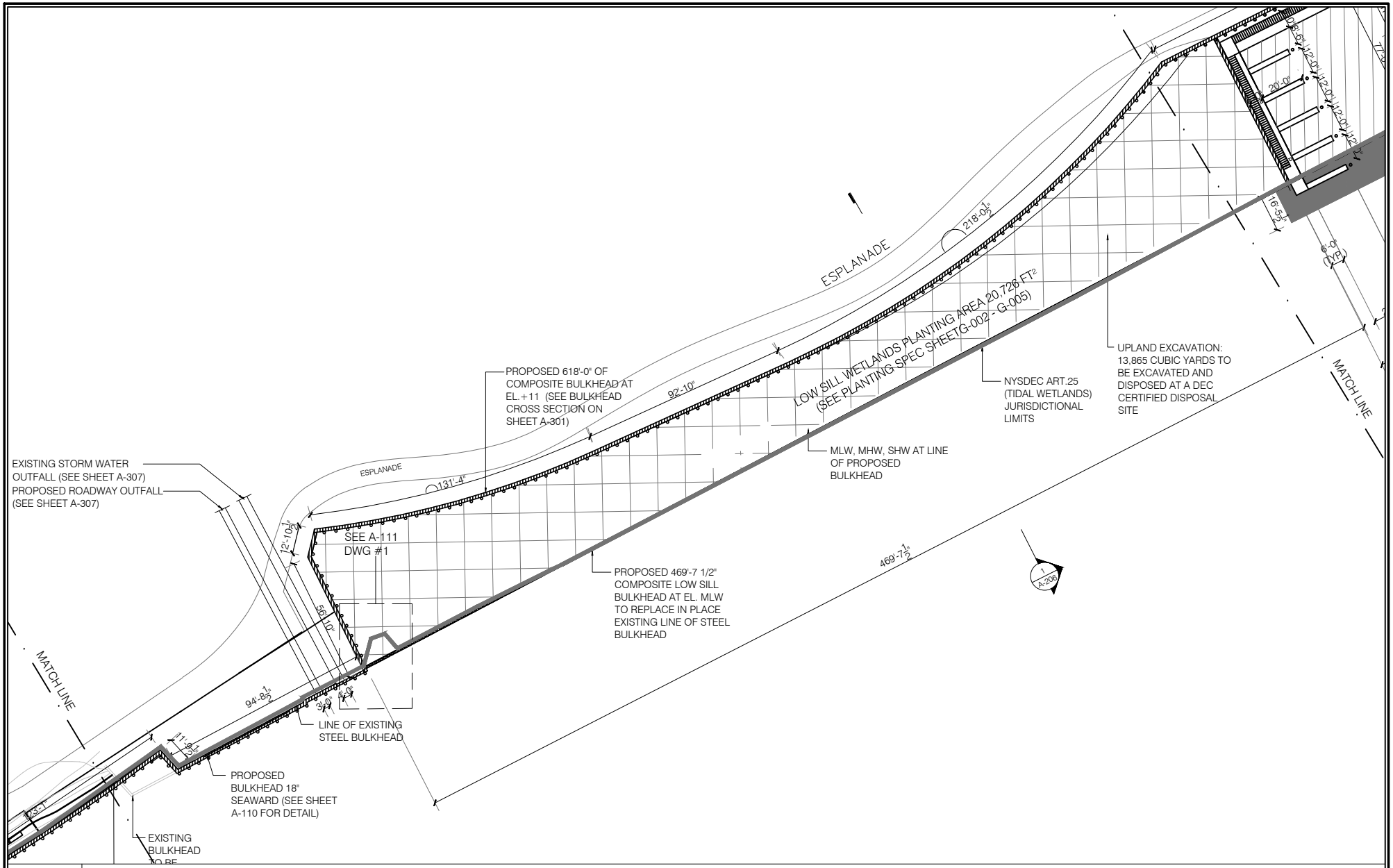
ANGLER'S CLUB MARINA

CITY OF GLEN COVE

NASSAU COUNTY, NEW YORK

SHEET NUMBER

A-106



1	LOW SILL BULKHEAD PLAN
	1" = 60'-0"

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GLEN COVE CREEK WATERFRONT REDEVELOPMENT PROJECT

LOW SILL BULKHEAD

CITY OF GLEN COVE
NASSAU COUNTY, NEW YORK

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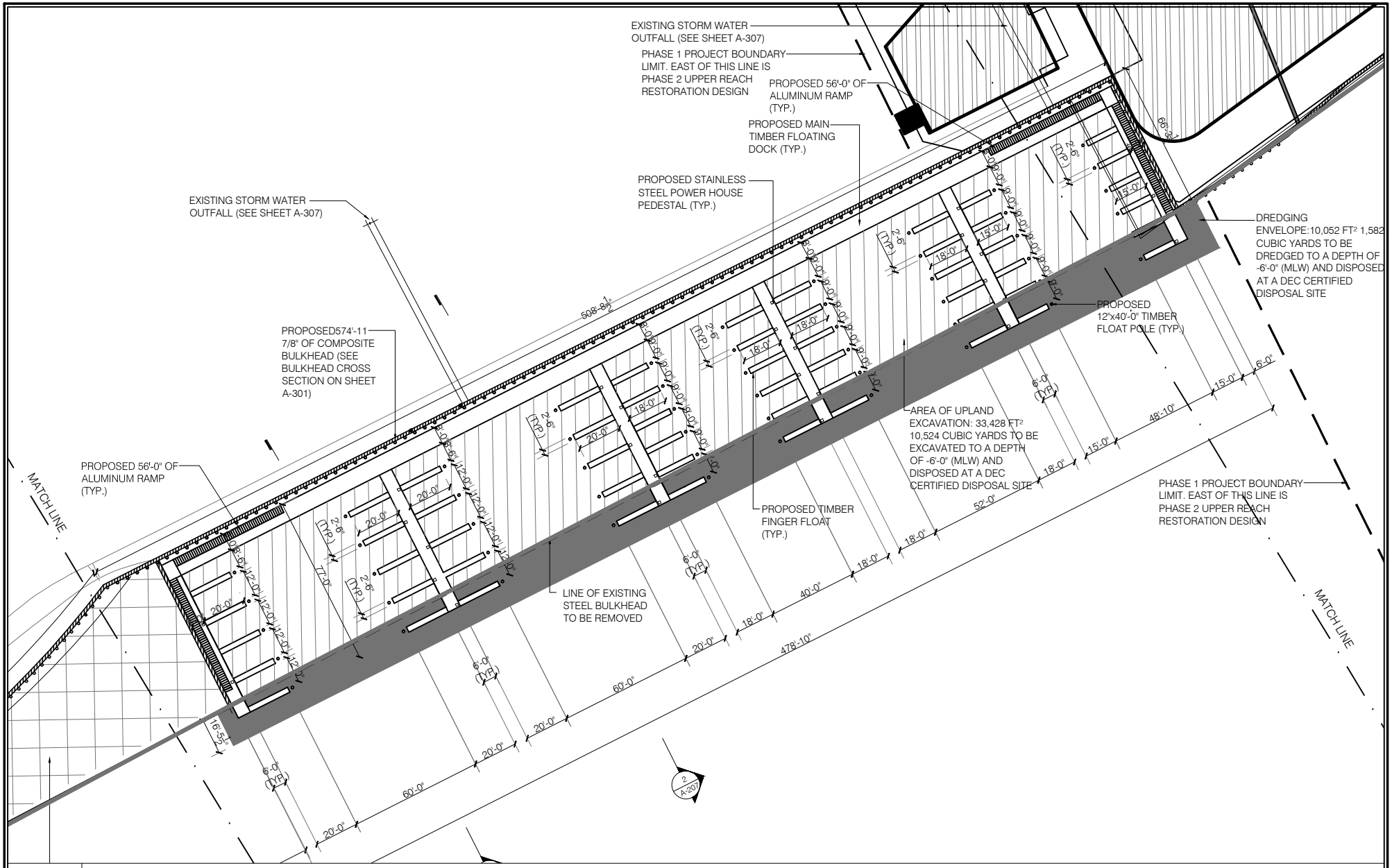
A-107



1 TRANSIENT MARINA PLAN

1" = 60'-0"

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GLEN COVE CREEK WATERFRONT REDEVELOPMENT PROJECT

TRANSIENT MARINA

CITY OF GLEN COVE

NASSAU COUNTY, NEW YORK

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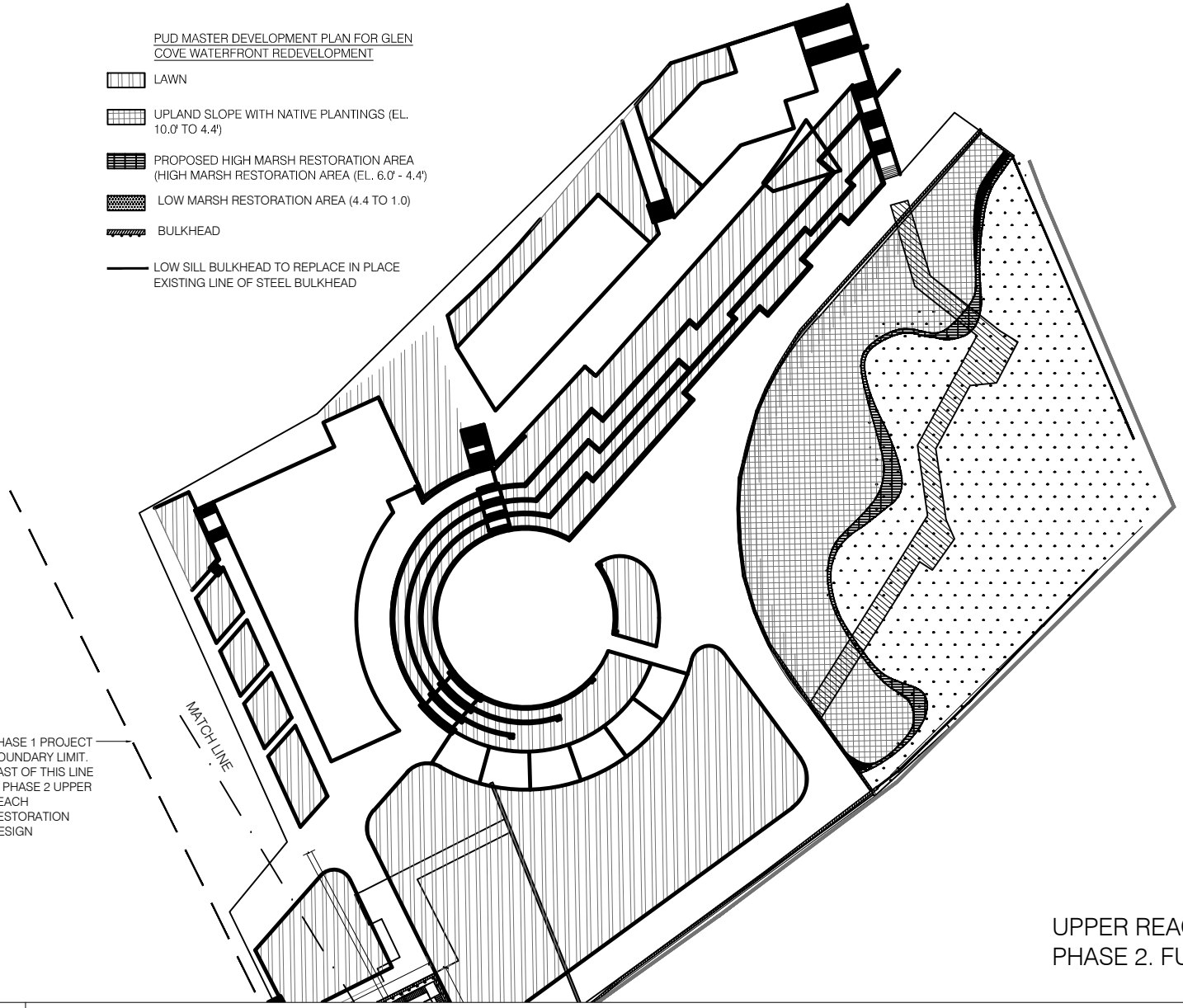
A-108



UPPER REACH RESTORATION DESIGN
PHASE 2. FUTURE PHASES TO BE DEFINED

1	TIDAL WEIR AND TURNING BASIN
	1" = 90'-0"

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GLEN COVE CREEK WATERFRONT REDEVELOPMENT PROJECT

UPPER REACH OF GLEN COVE CREEK

CITY OF GLEN COVE
NASSAU COUNTY, NEW YORK

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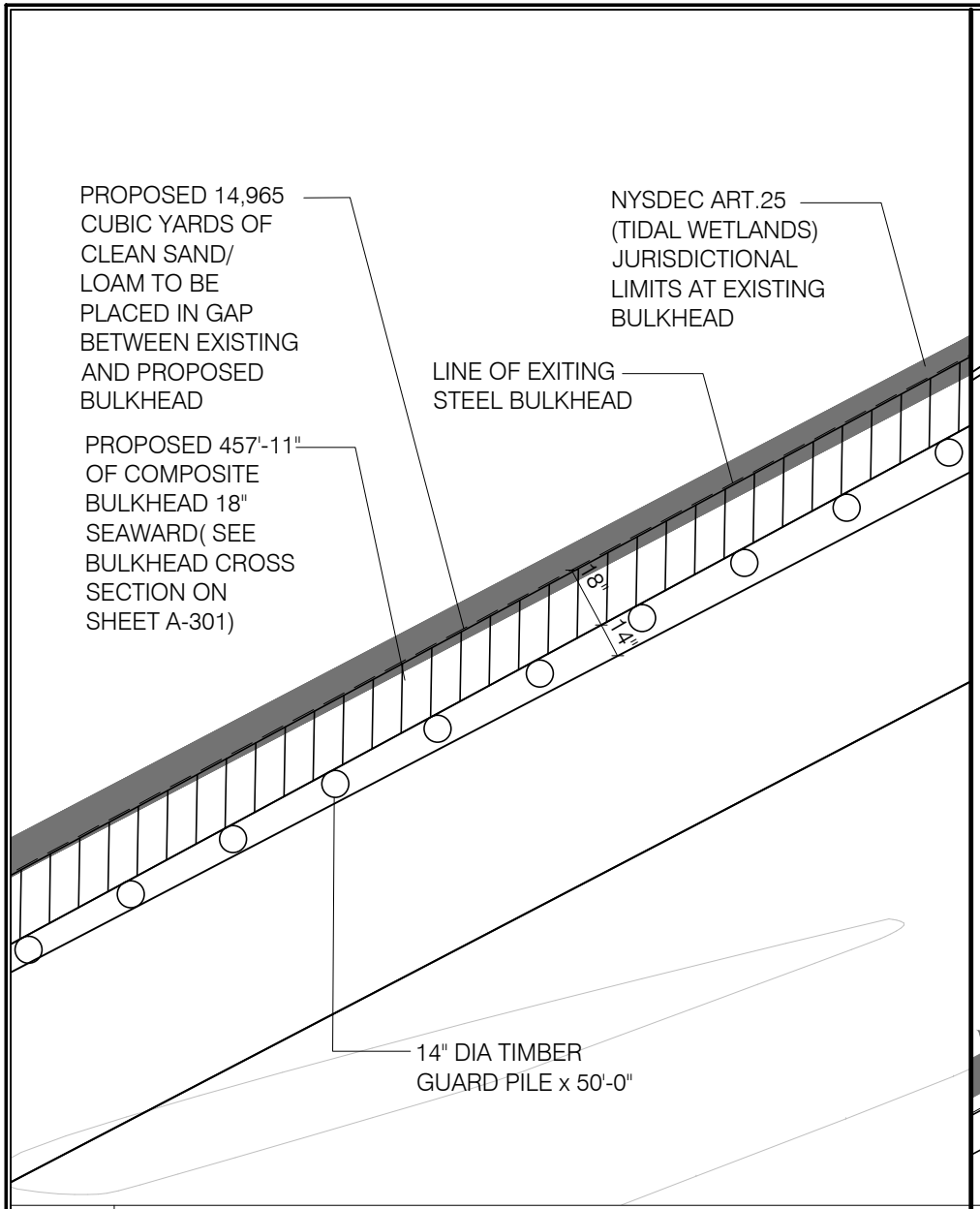
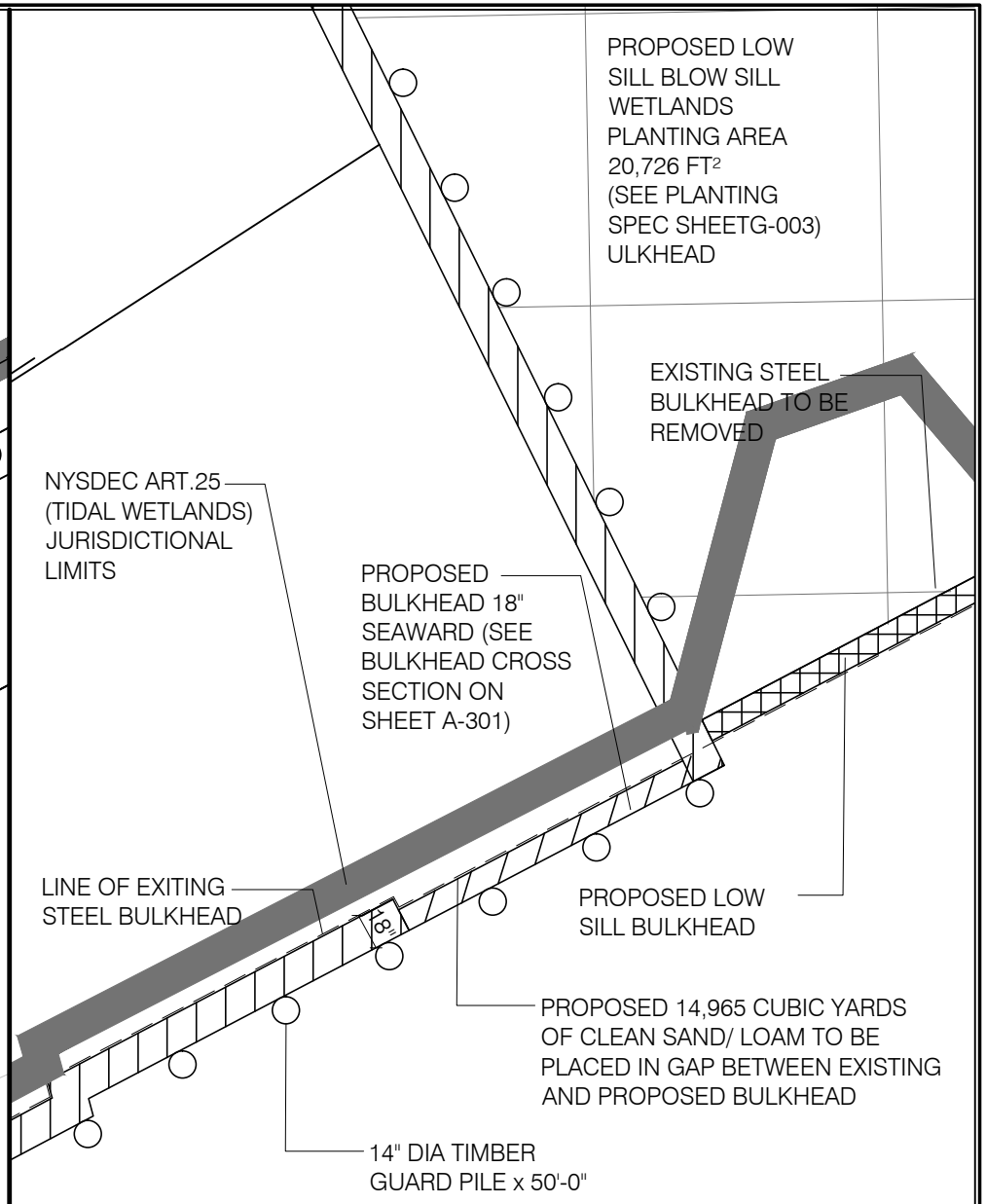
A-109



1	SMALL VESSEL MARINA BULKHEAD PLACEMENT
	1" = 8'-0"



2	BULKHEAD PLACEMENT AT LOW SILL BULKHEAD
	1" = 8'-0"

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INSET PLANS

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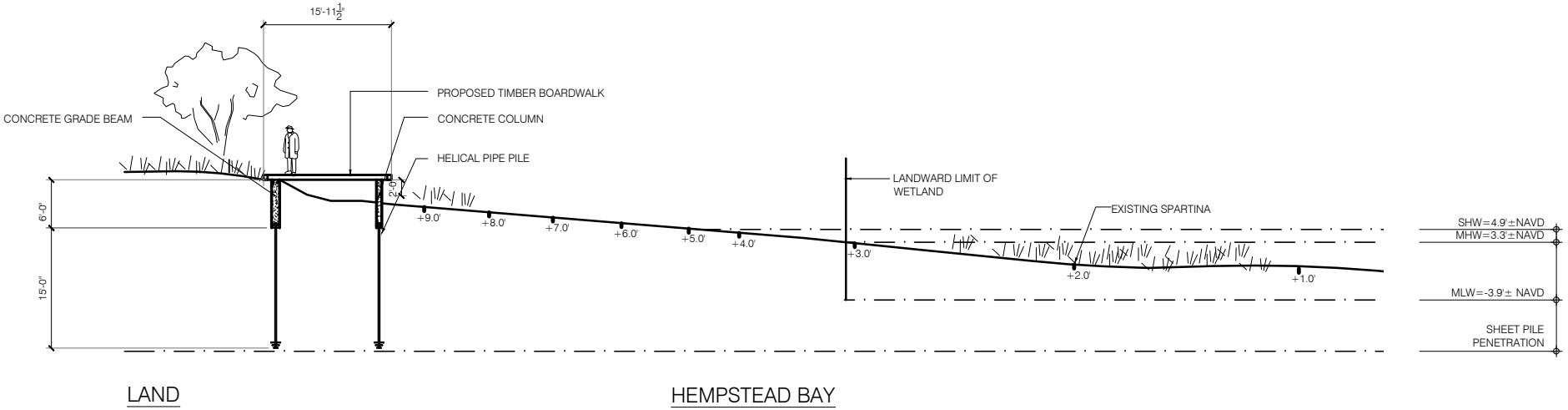
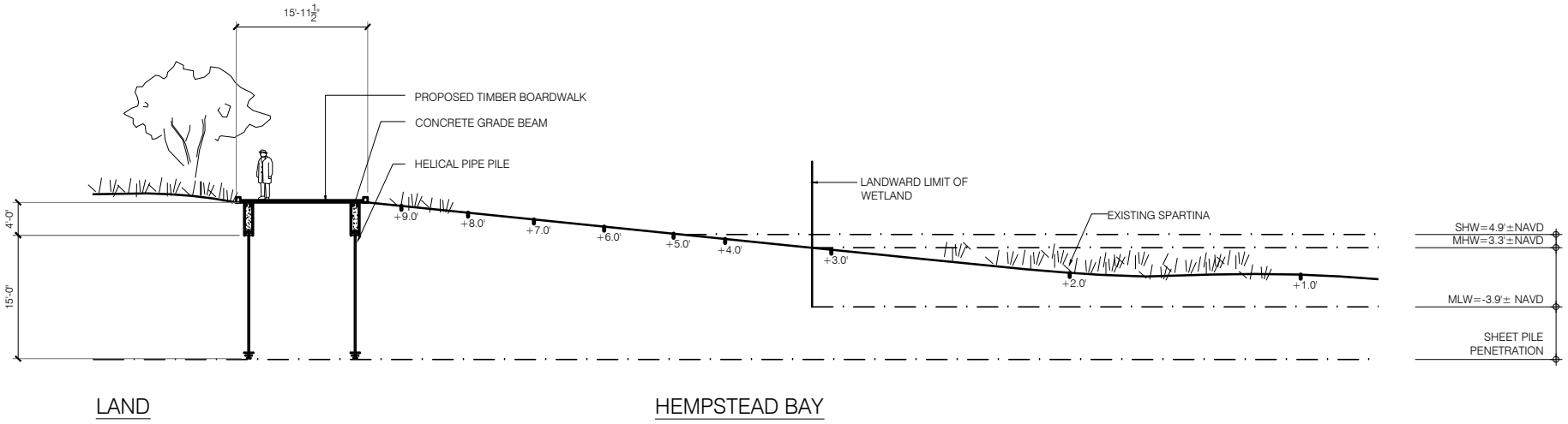


1	GARVIES POINT BEACH ELEVATED BOARDWALK SECTION
	1" = 20'-0"



2	GARVIES POINT BEACH BOARDWALK SECTION
	1" = 20'-0"

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Cedarhurst, New York
t: 347 692 0093

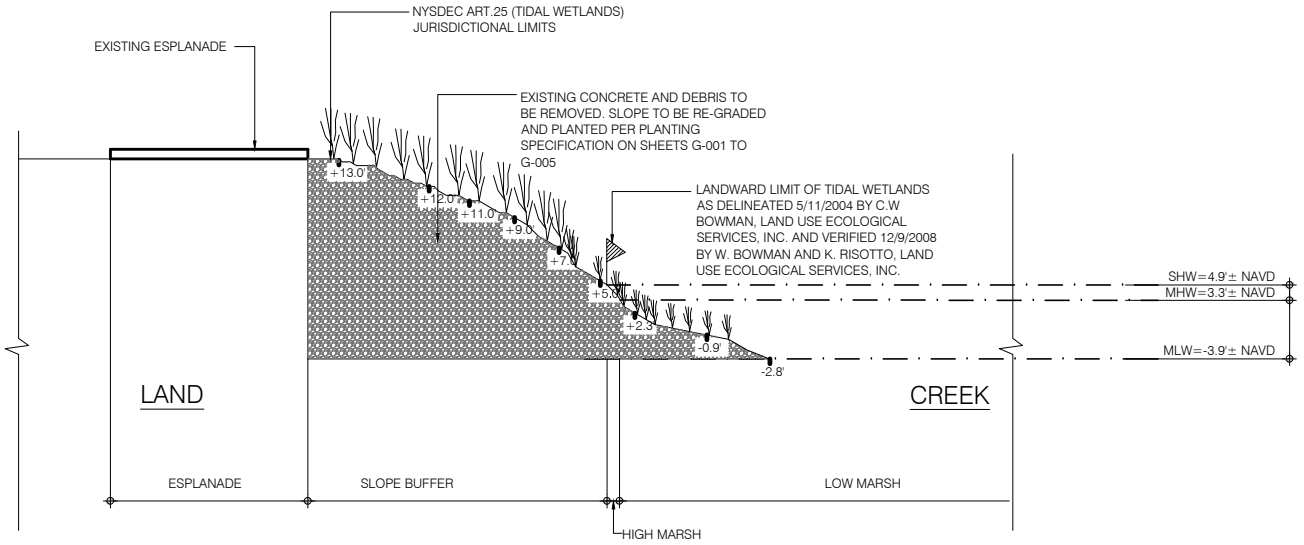
GLEN COVE CREEK WATERFRONT REDEVELOPMENT PROJECT

GARVIES POINT BEACH

CITY OF GLEN COVE
NASSAU COUNTY, NEW YORK

SHEET NUMBER

A-200



2 CAPTAIN'S COVE SECTION

1" = 20'-0"

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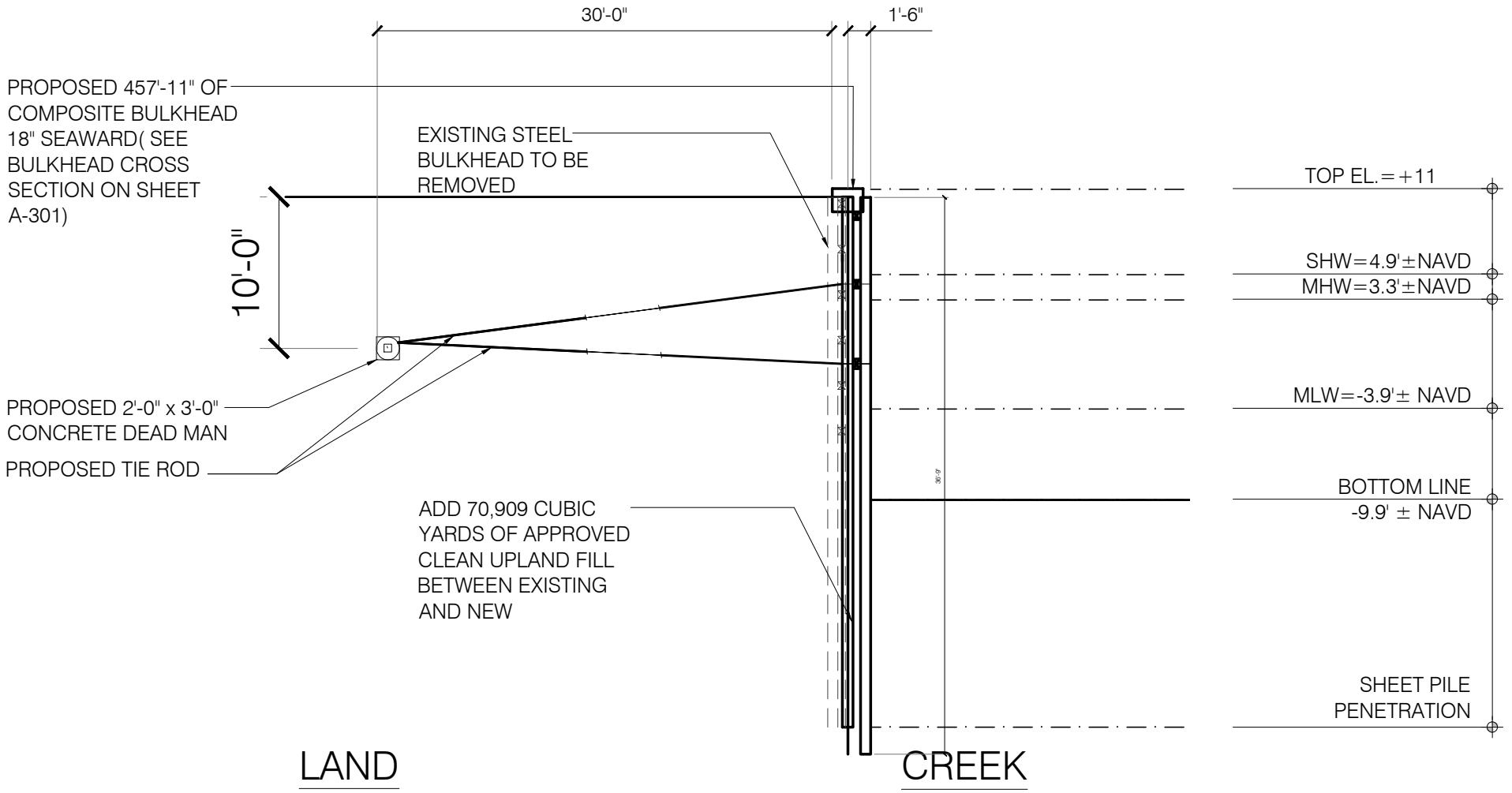
GLEN COVE CREEK WATERFRONT REDEVELOPMENT PROJECT

GARVIES POINT BEACH & CAPTAIN'S COVE

CITY OF GLEN COVE
NASSAU COUNTY, NEW YORK

SHEET NUMBER

A-201



REFER TO SHEET A-111 FOR PLAN VIEW OF PROPOSED COMPOSITE BULKHEAD TO BE INSTALLED 18" SEAWARD OF EXISTING BULKHEAD TO BE REMOVED

1	GARVIES POINT BULKHEAD SECTION
	1" = 10'-0"

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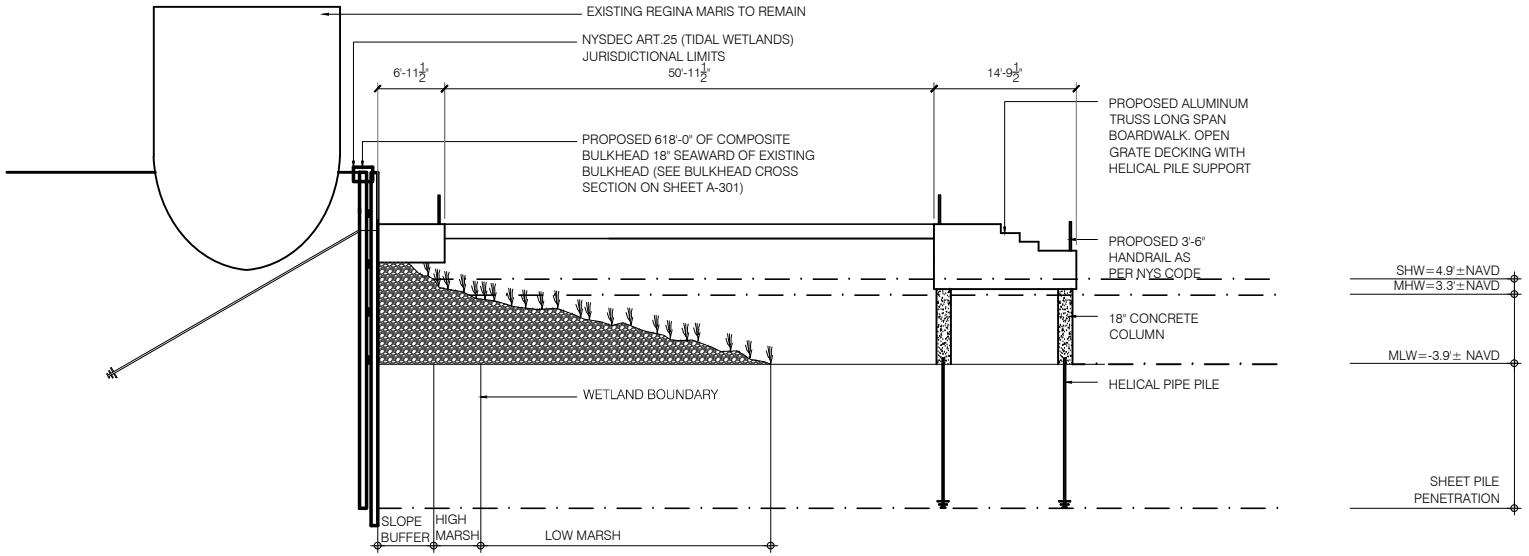
GLEN COVE CREEK WATERFRONT REDEVELOPMENT PROJECT

GARVIES POINT BEACH & CAPTAIN'S COVE

CITY OF GLEN COVE
NASSAU COUNTY, NEW YORK

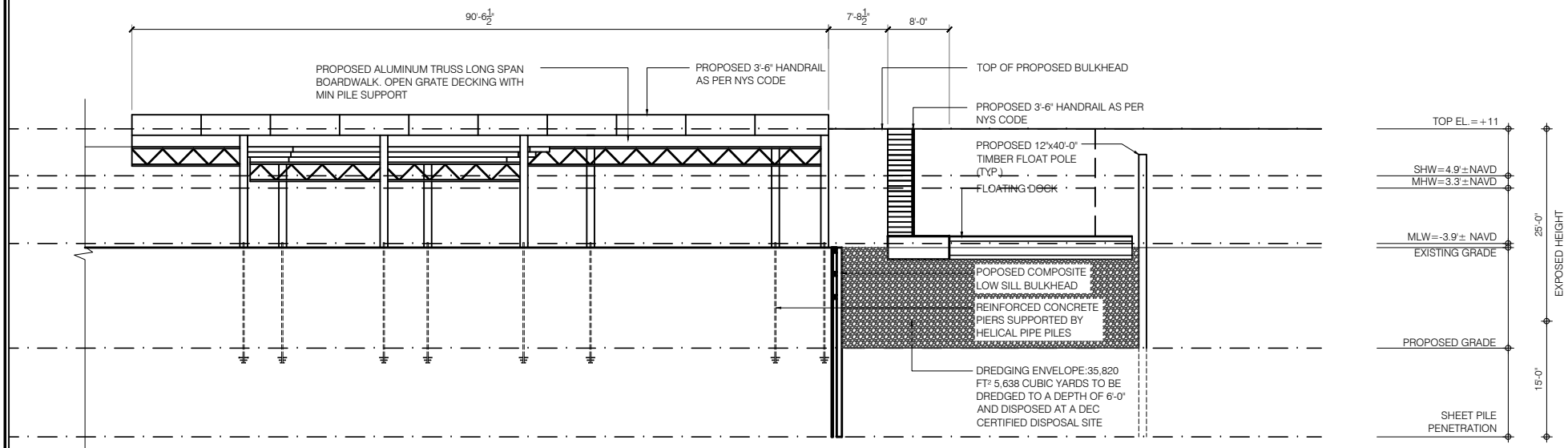
SHEET NUMBER

A-202



1 ECOLOGICAL PIER AND SMALL VESSEL MARINA SECTION

1" = 20'-0"



2 ECOLOGICAL PIER AND SMALL VESSEL MARINA SECTION

1" = 20'-0"

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Suite 25, Melville, NY 11747
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GLEN COVE CREEK WATERFRONT REDEVELOPMENT PROJECT

ECOLOGICAL PIER AND SMALL VESSEL MARINA

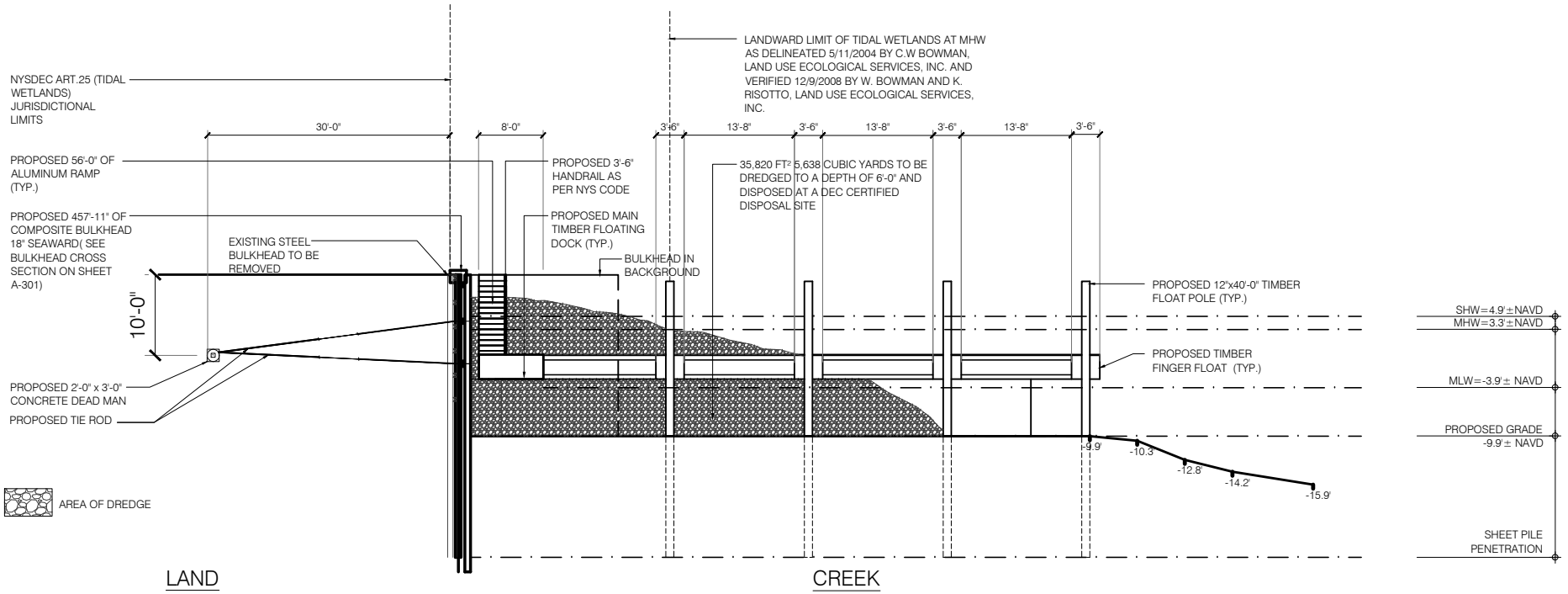
CITY OF GLEN COVE
NASSAU COUNTY, NEW YORK

SHEET NUMBER

A-203

NOTES:

1. DREDGE AREAS TO HAVE A MAXIMUM SIDE SLOPE OF 1:5.
2. EXCEPT IN CAPTAIN'S COVE, LANDWARD LIMIT OF TIDAL WETLANDS IS EQUIVALENT TO THE LINE OF MEAN HIGH WATER (MWH) AS DELINEATED 5/11/2004 BY C.W. BOWMAN AND VERIFIED 12/9/2008 BY W.P. BOWMAN AND K. RISOTTO, LAND USE ECOLOGICAL SERVIES, INC. IN CAPTAIN'S COVE, LANDWARD LIMIT OF TIDAL WETLANDS IS EQUIVALENT TO THE LIMIT OF EXISTING VEGETATED INTERTIDAL/HIGH MARSH AS DELINEATED 5/11/2004 BY C.W. BOWMAN AND VERIFIED 12/9/2008 BY C.P. BOWMAN AND K. RISOTTO, LAND USE ECOLOGICAL SERVICES, INC.
3. VERTICAL DATUM IS NAVD88. HORIZONTAL DATUM IS NAD83.



1	ECOLOGICAL PIER AND SMALL VESSEL MARINA SECTION
	1" = 20'-0"

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GLEN COVE CREEK WATERFRONT REDEVELOPMENT PROJECT

ECOLOGICAL PIER AND SMALL VESSEL MARINA

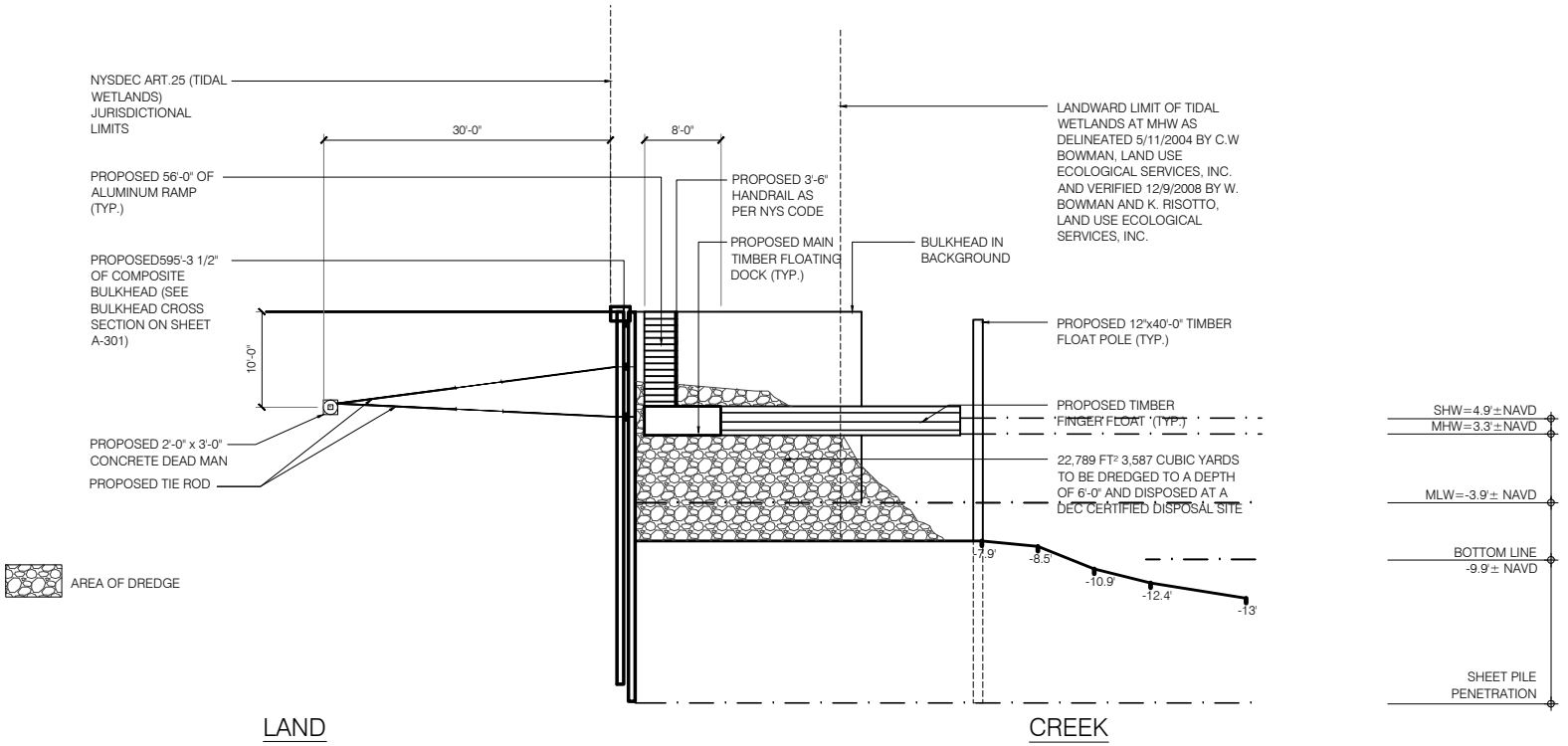
CITY OF GLEN COVE
NASSAU COUNTY, NEW YORK

SHEET NUMBER

A-204

NOTES:

1. DREDGE AREAS TO HAVE A MAXIMUM SIDE SLOPE OF 1:5.
2. EXCEPT IN CAPTAIN'S COVE, LANDWARD LIMIT OF TIDAL WETLANDS IS EQUIVALENT TO THE LINE OF MEAN HIGH WATER (MWH) AS DELINEATED 5/11/2004 BY C.W. BOWMAN AND VERIFIED 12/9/2008 BY W.P. BOWMAN AND K. RISOTTO, LAND USE ECOLOGICAL SERVIES, INC. IN CAPTAIN'S COVE, LANDWARD LIMIT OF TIDAL WETLANDS IS EQUIVALENT TO THE LIMIT OF EXISTING VEGETATED INTERTIDAL/HIGH MARSH AS DELINEATED 5/11/2004 BY C.W. BOWMAN AND VERIFIED 12/9/2008 BY C.P. BOWMAN AND K. RISOTTO, LAND USE ECOLOGICAL SERVICES, INC.
3. VERTICAL DATUM IS NAVD88. HORIZONTAL DATUM IS NAD83.



1	ANGLER'S CLUB MARINA SECTION
	1" = 20"-0"

Advanced American Engineering PLLC.
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GLEN COVE CREEK WATERFRONT REDEVELOPMENT PROJECT

ANGLER'S CLUB MARINA

CITY OF GLEN COVE

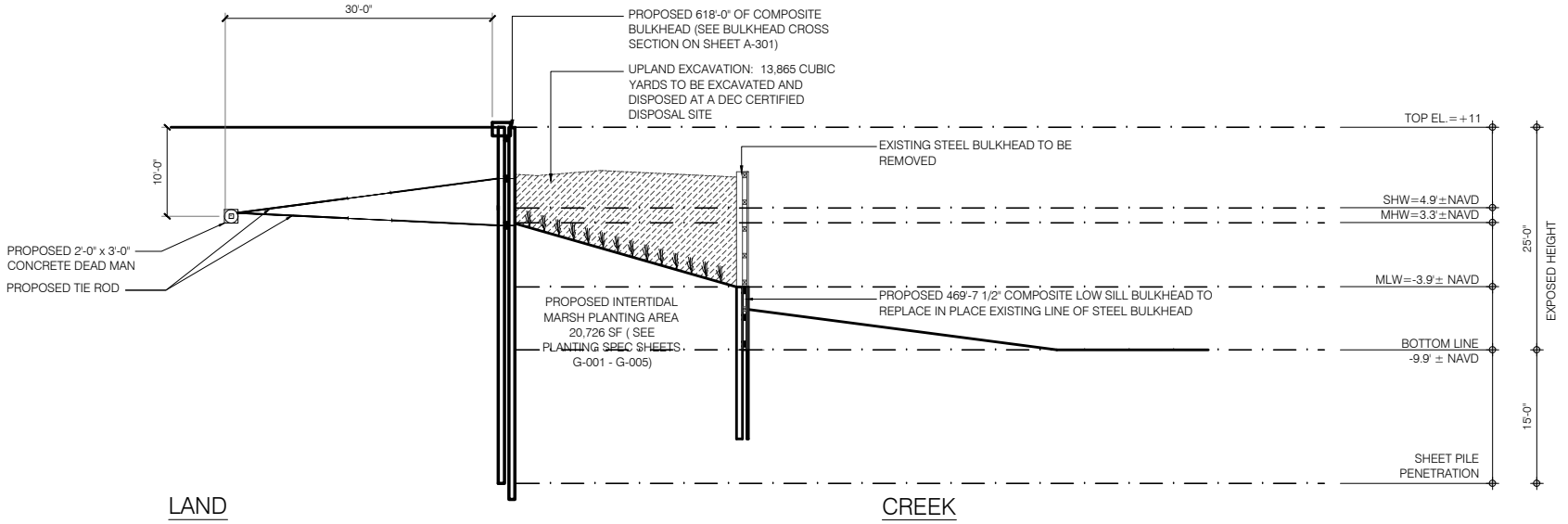
NASSAU COUNTY, NEW YORK

SHEET NUMBER

A-205

NOTES:

1. DREDGE AREAS TO HAVE A MAXIMUM SIDE SLOPE OF 1:5.
2. EXCEPT IN CAPTAIN'S COVE, LANDWARD LIMIT OF TIDAL WETLANDS IS EQUIVALENT TO THE LINE OF MEAN HIGH WATER (MWH) AS DELINEATED 5/11/2004 BY C.W. BOWMAN AND VERIFIED 12/9/2008 BY W.P. BOWMAN AND K. RISOTTO, LAND USE ECOLOGICAL SERVIES, INC. IN CAPTAIN'S COVE, LANDWARD LIMIT OF TIDAL WETLANDS IS EQUIVALENT TO THE LIMIT OF EXISTING VEGETATED INTERTIDAL/HIGH MARSH AS DELINEATED 5/11/2004 BY C.W. BOWMAN AND VERIFIED 12/9/2008 BY C.P. BOWMAN AND K. RISOTTO, LAND USE ECOLOGICAL SERVICES, INC.
3. EXISTING CONDITIONS TAKEN FROM SURVEY PREPARED BY [], DATED [], AND LAST REVISED [].
4. VERTICAL DATUM IS NAVD88. HORIZONTAL DATUM IS NAD83.



1	LOW SILL BULKHEAD
	1" = 20'-0"

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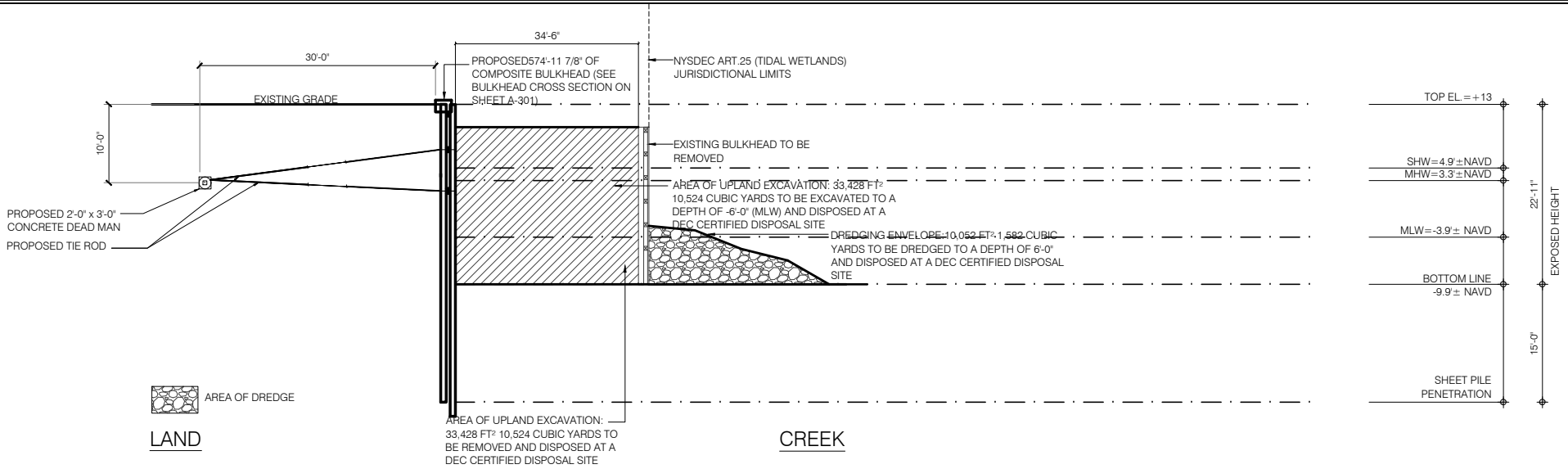
GLEN COVE CREEK WATERFRONT REDEVELOPMENT PROJECT

LOW SILL BULKHEAD

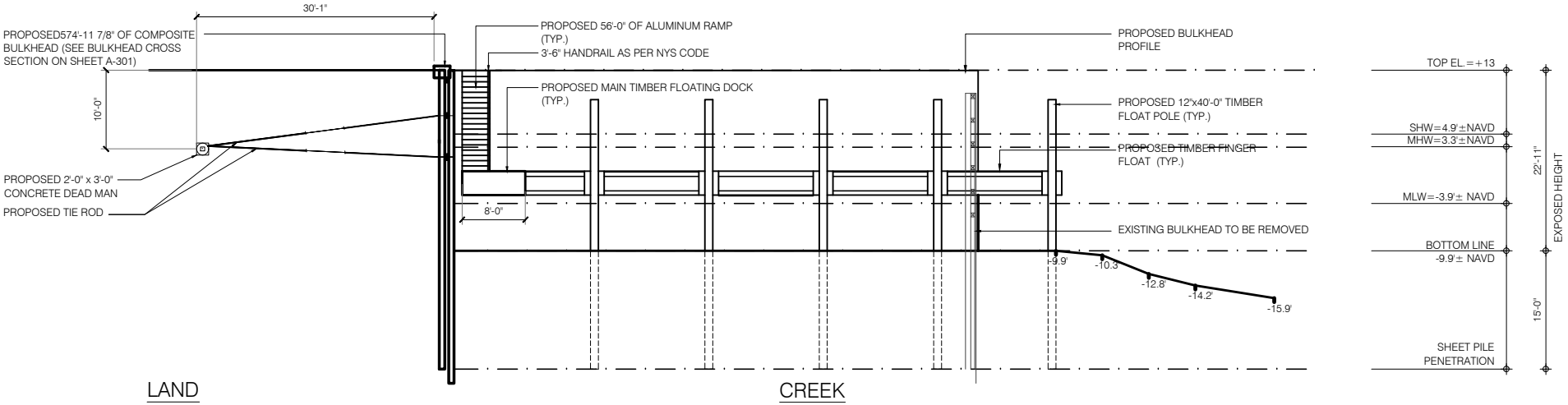
CITY OF GLEN COVE
NASSAU COUNTY, NEW YORK

SHEET NUMBER

A-206



1	TRANSIENT MARINA DREDGING
	1" = 20'-0"



2	TRANSIENT MARINA DOCKS
	1" = 20'-0"

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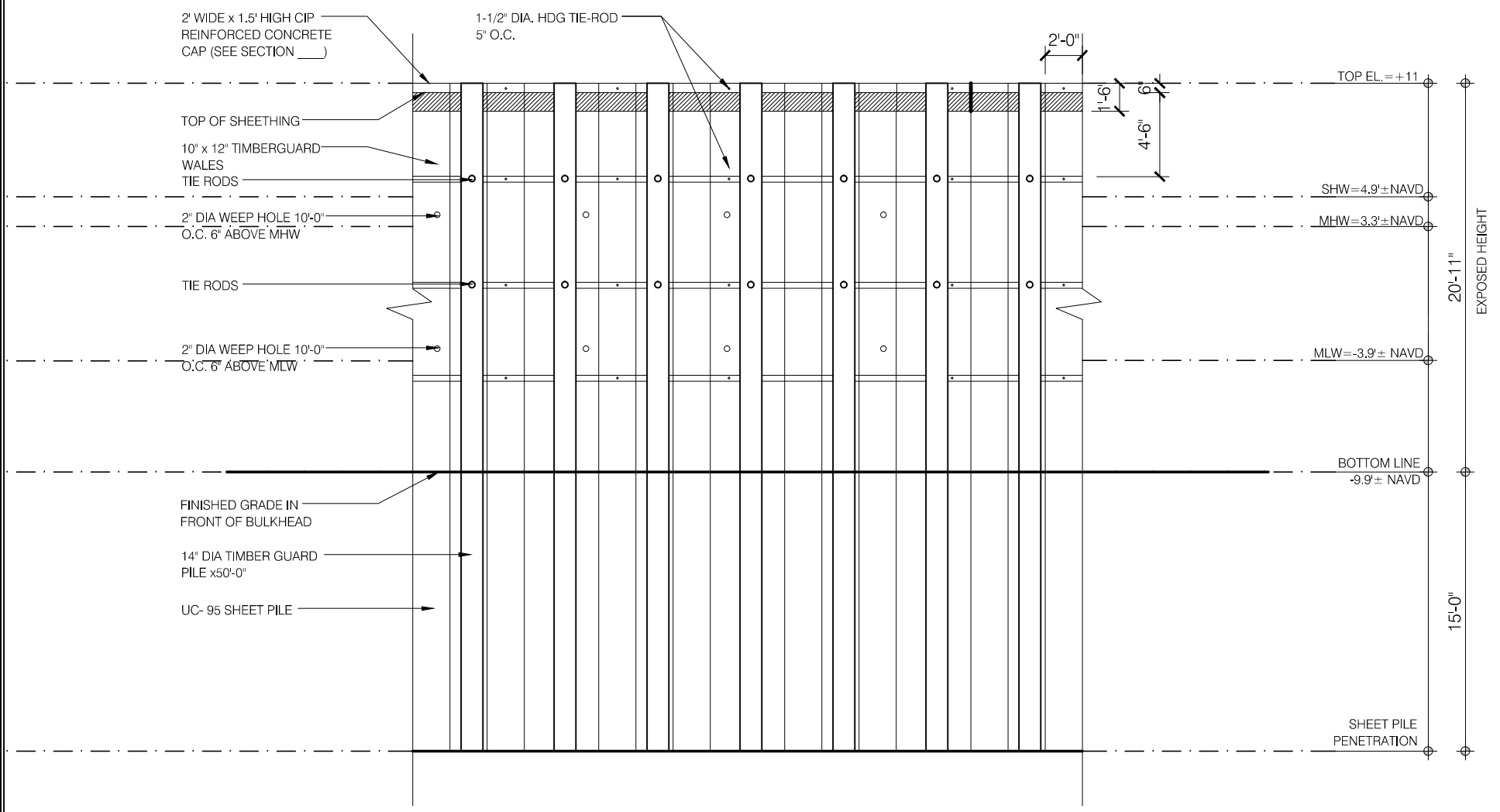
GLEN COVE CREEK WATERFRONT REDEVELOPMENT PROJECT

TRANSIENT MARINA

CITY OF GLEN COVE
NASSAU COUNTY, NEW YORK

SHEET NUMBER

A-207



1	BULKHEAD ELEVATION WITH CONCRETE CAP
	1" = 8'-0"

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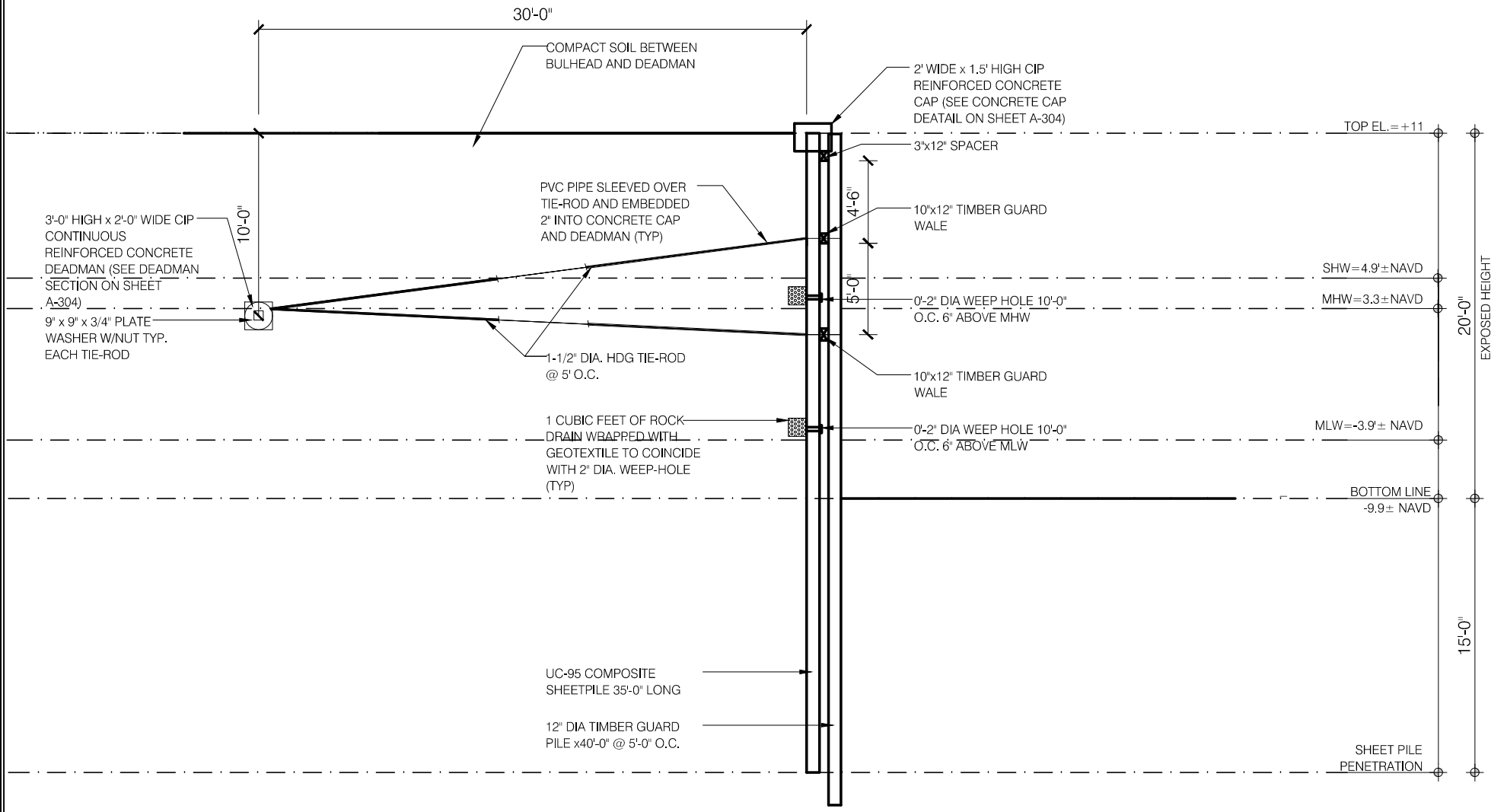
GLEN COVE CREEK WATERFRONT REDEVELOPMENT PROJECT

BULKHEAD ELEVATION WITH CONCRETE CAP

CITY OF GLEN COVE
NASSAU COUNTY, NEW YORK

SHEET NUMBER

A-300



1	BULKHEAD CROSS SECTION
	1" = 8'-0"

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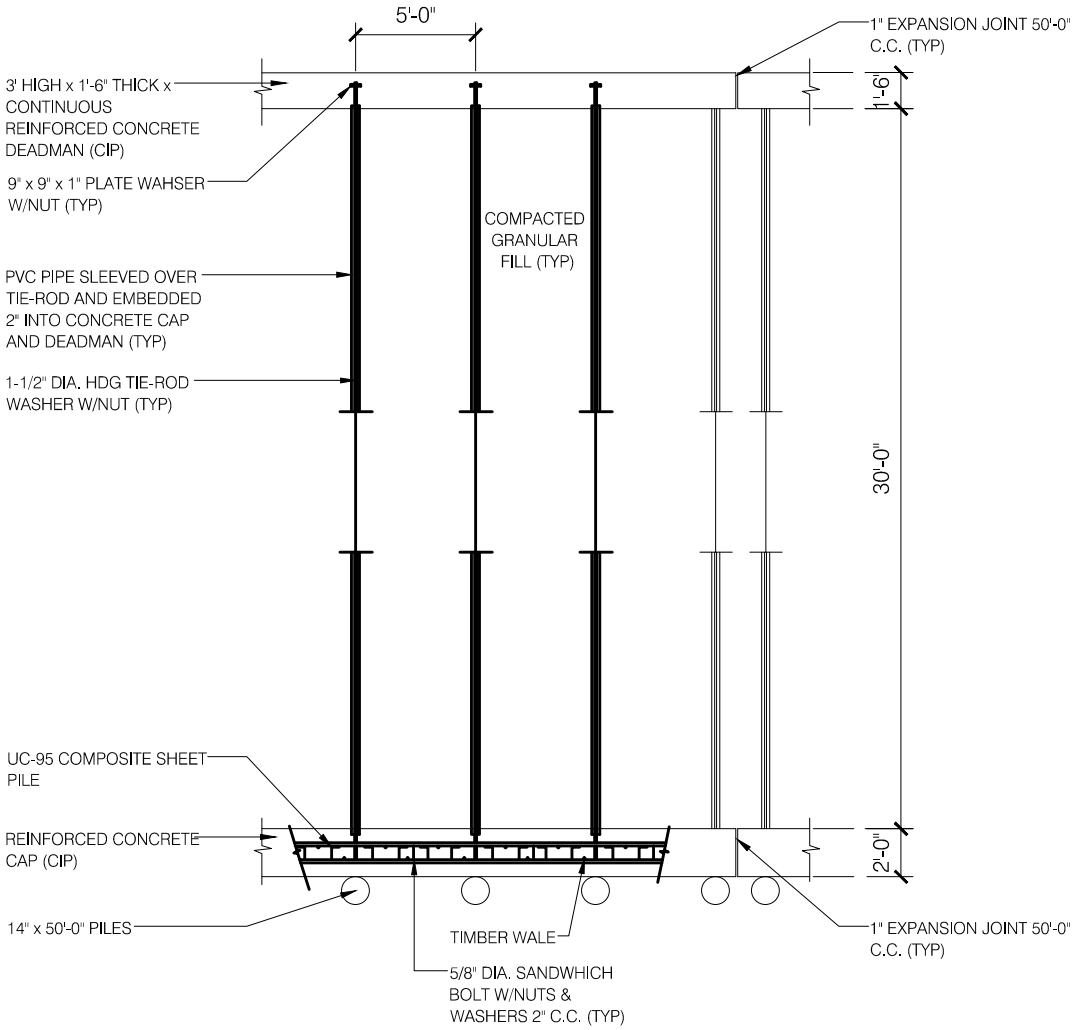
GLEN COVE CREEK WATERFRONT REDEVELOPMENT PROJECT

TYP. BULKHEAD CROSS SECTION

CITY OF GLEN COVE
NASSAU COUNTY, NEW YORK

SHEET NUMBER

A-301



1	CONCRETE DEADMAN DETAIL
	1" = 1'-0"

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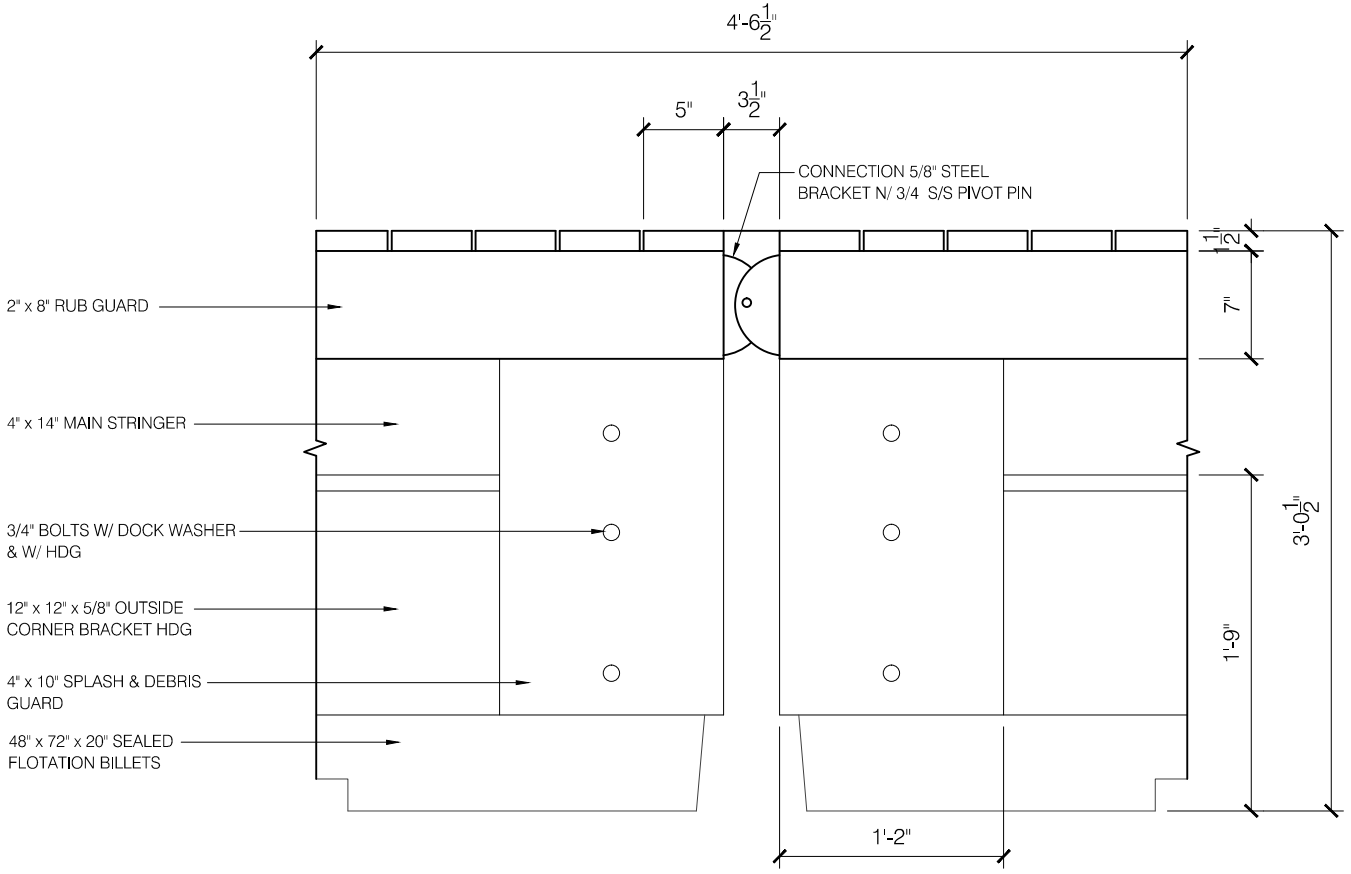
GLEN COVE CREEK WATERFRONT REDEVELOPMENT PROJECT

TYP. CONCRETE DEADMAN DETAIL

CITY OF GLEN COVE
NASSAU COUNTY, NEW YORK

SHEET NUMBER

A-302



1	TYPICAL PROPOSED TIMBER FINGER FLOAT CONNECTION DETAIL
	1" = 1'-0"

Advanced American Engineering PLLC.
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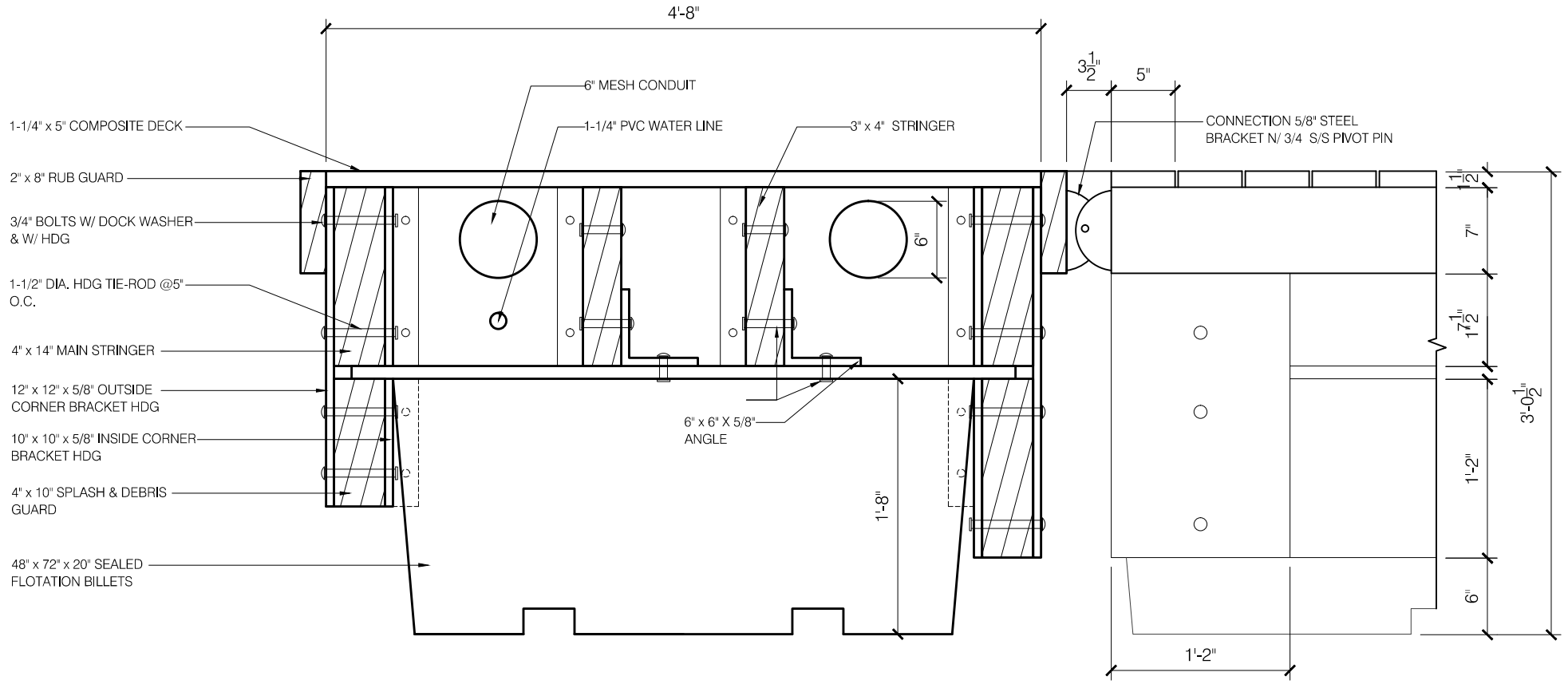
GLEN COVE CREEK WATERFRONT REDEVELOPMENT PROJECT

TYPICAL PROPOSED TIMBER FINGER FLOAT CONNECTION DETAIL

CITY OF GLEN COVE
NASSAU COUNTY, NEW YORK

SHEET NUMBER

A-303



FINGER FLOAT

1	TYPICAL PROPOSED FLOATING DOCK PERPENDICULAR CONNECTION JOINT
	1" = 1'-0"

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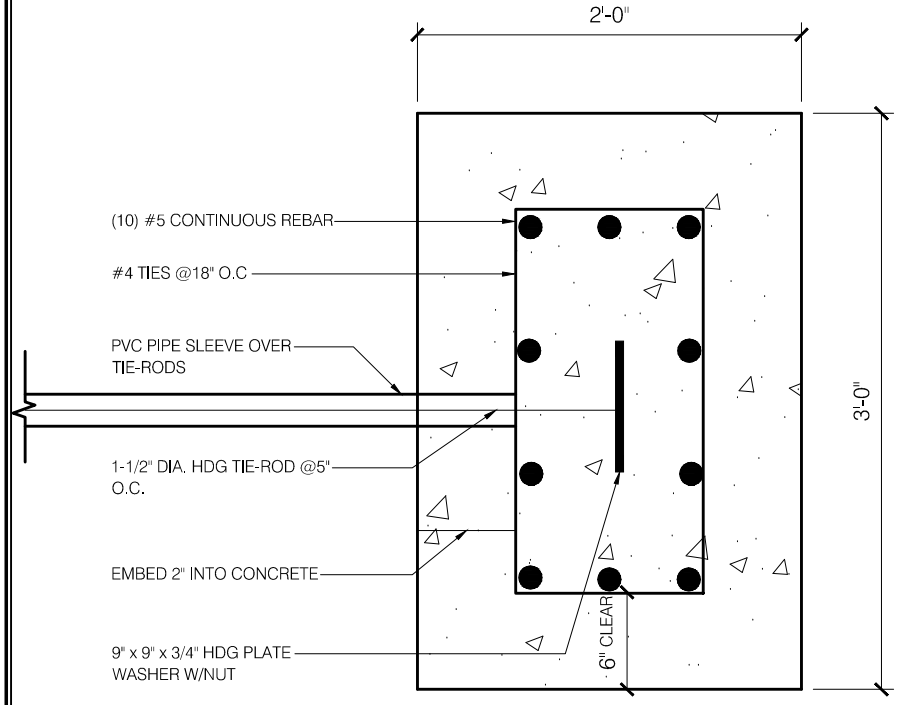
GLEN COVE CREEK WATERFRONT REDEVELOPMENT PROJECT

TYPICAL PROPOSED FLOATING DOCK PERPENDICULAR CONNECTION JOINT

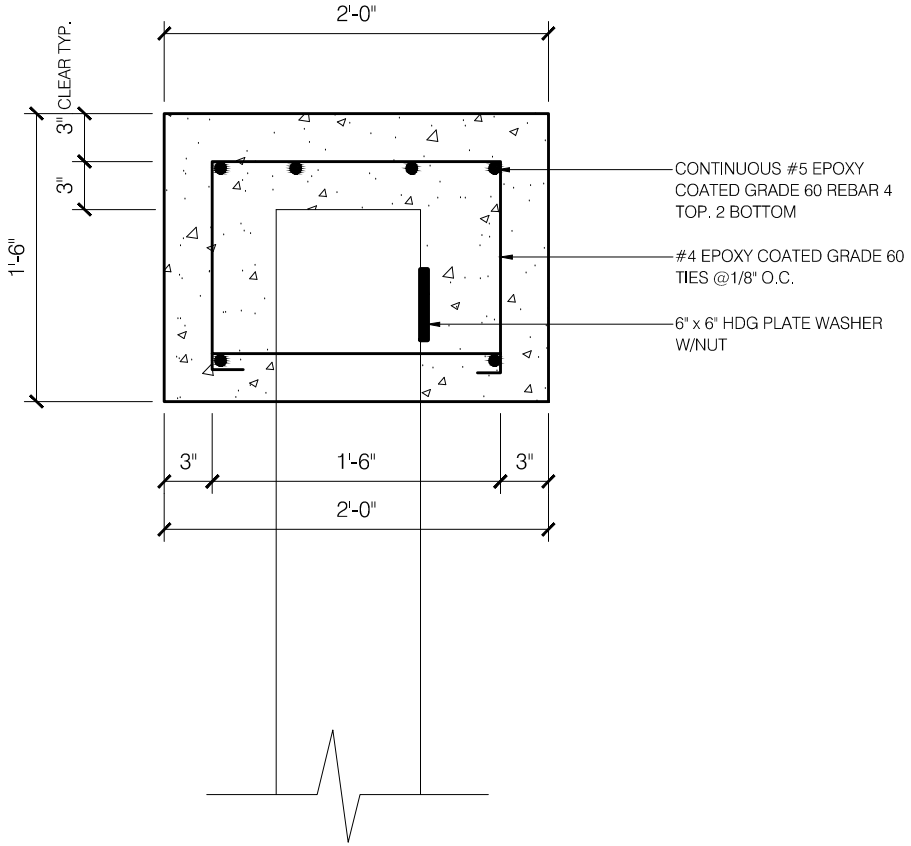
CITY OF GLEN COVE
NASSAU COUNTY, NEW YORK

SHEET NUMBER

A-304



1	CONCRETE DEADMAN DETAIL
	1" = 1'-0"



2	CONCRETE CAP DETAIL
	1" = 1'-0"

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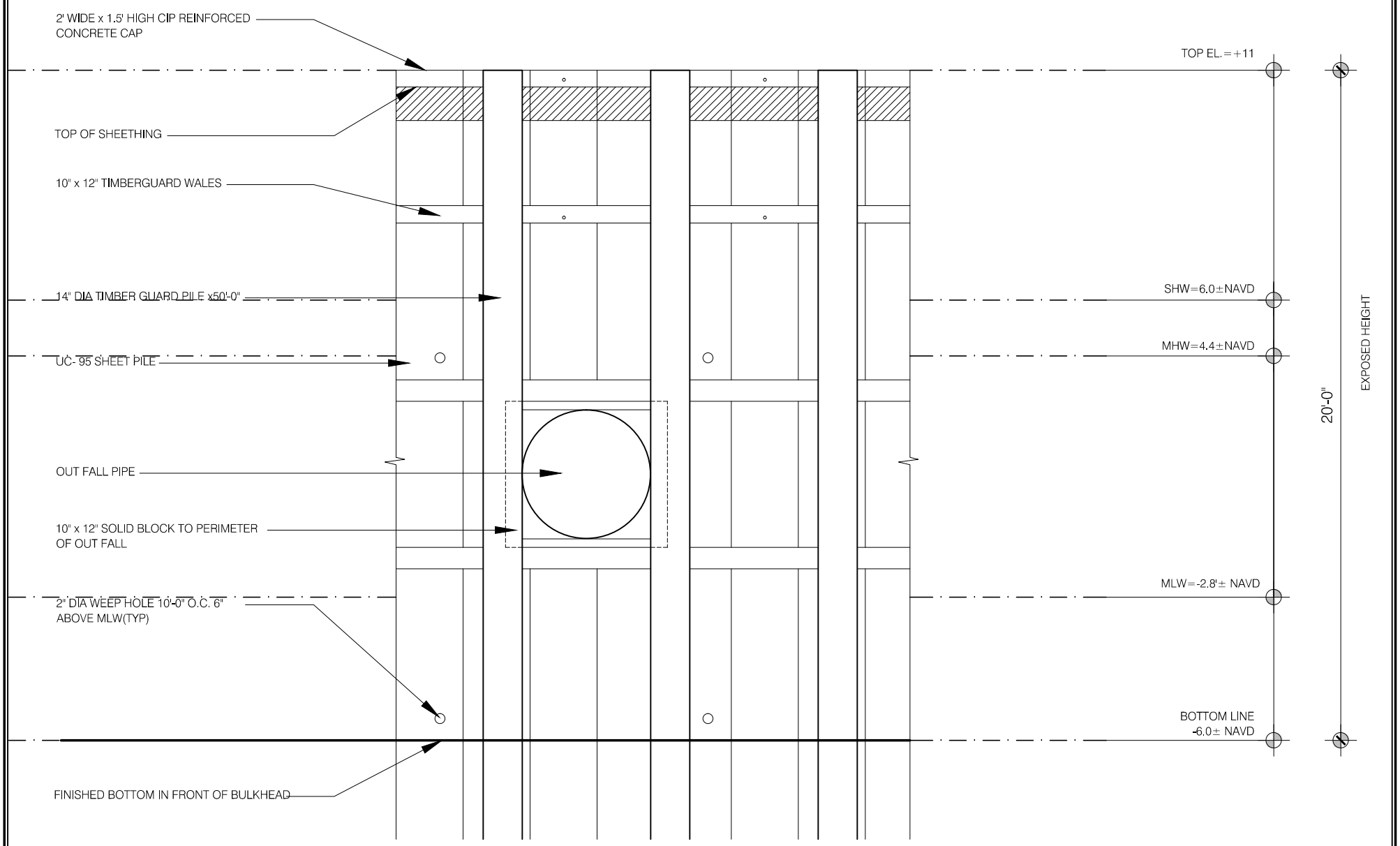
GLEN COVE CREEK WATERFRONT REDEVELOPMENT PROJECT

TYP. CONCRETE DEADMAN AND CAP DETAILS

CITY OF GLEN COVE
NASSAU COUNTY, NEW YORK

SHEET NUMBER

A-305



1 OUTFALL ELEVATION

1" = 4'-0"

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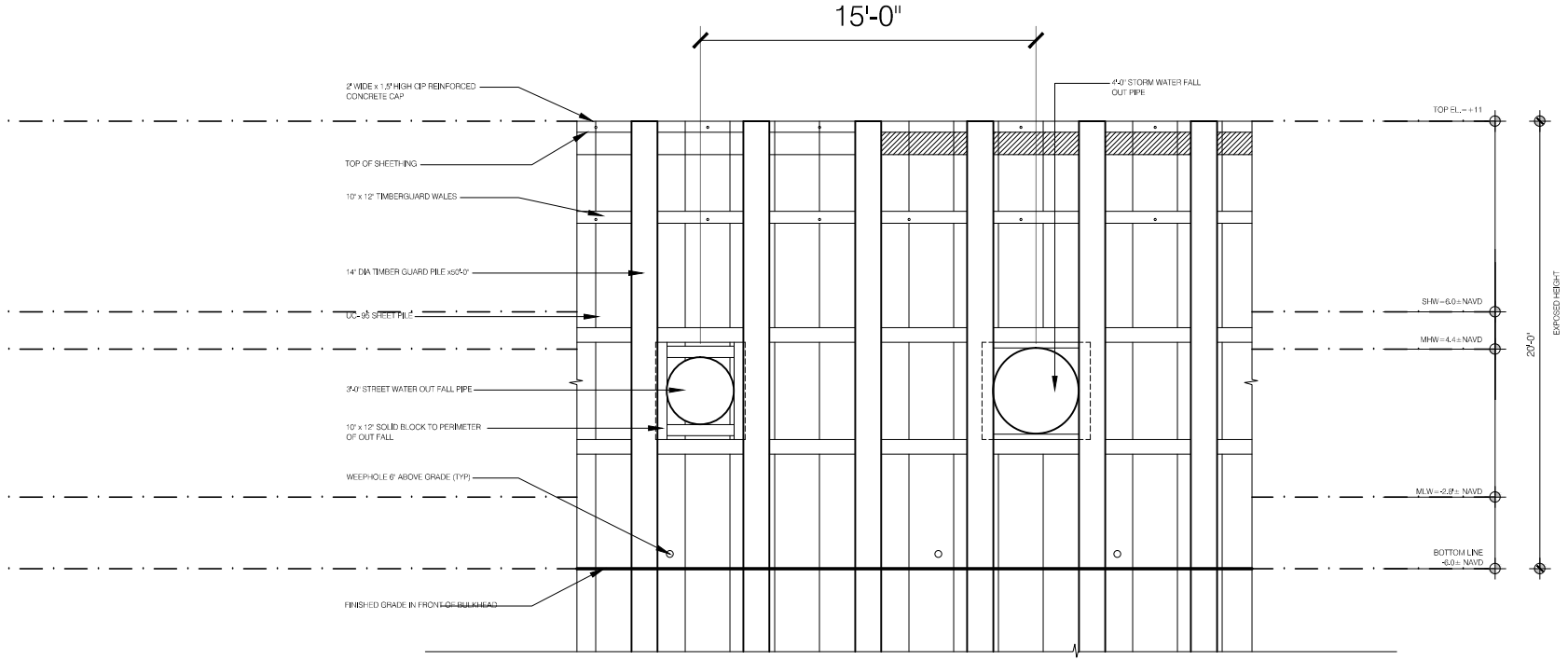
GLEN COVE CREEK WATERFRONT REDEVELOPMENT PROJECT

OUTFALL ELEVATION

CITY OF GLEN COVE
NASSAU COUNTY, NEW YORK

SHEET NUMBER

A-306



1	OUTFALL ELEVATION
	1" = 8'-0"

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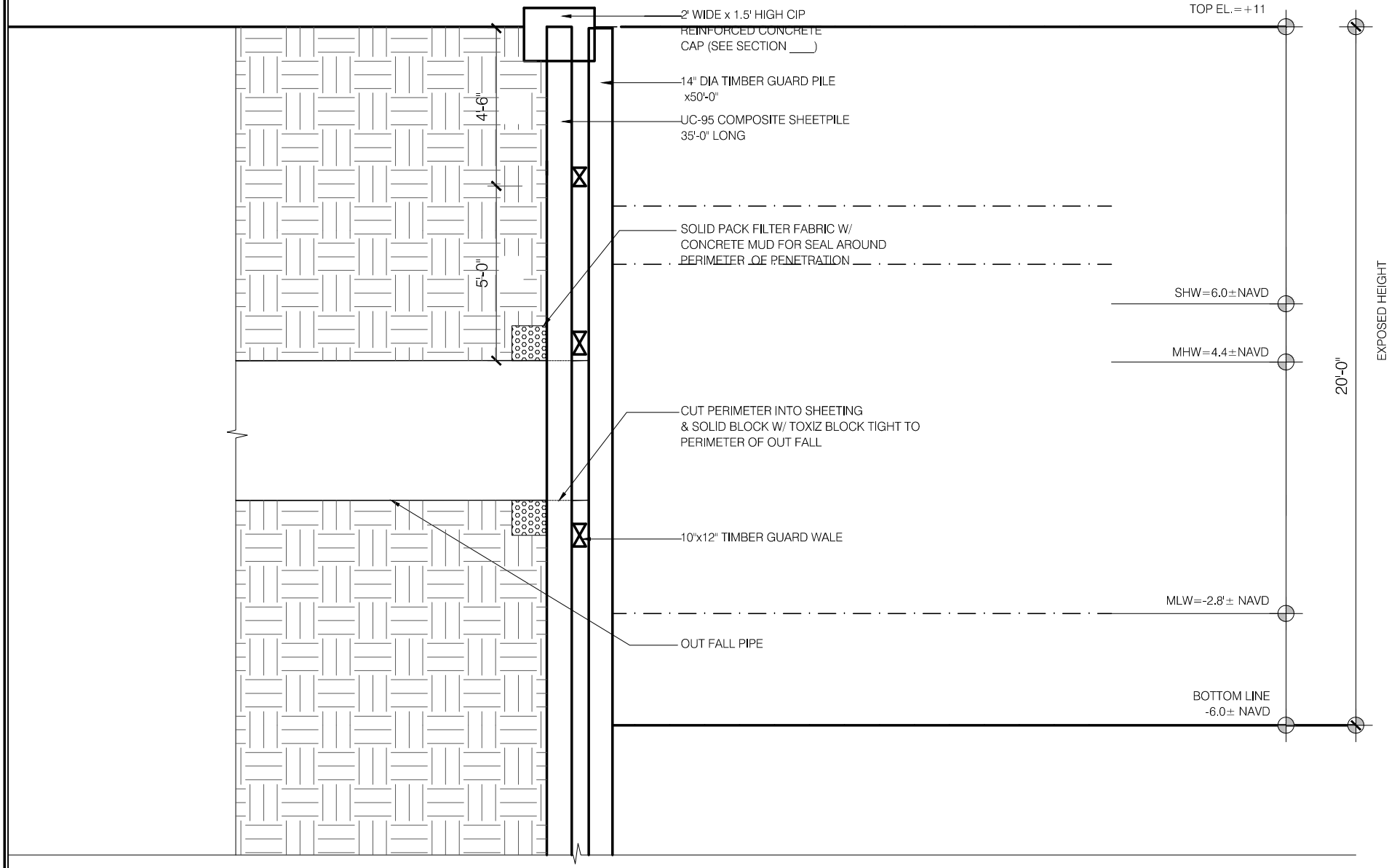
GLEN COVE CREEK WATERFRONT REDEVELOPMENT PROJECT

OUTFALL ELEVATION

CITY OF GLEN COVE
NASSAU COUNTY, NEW YORK

SHEET NUMBER

A-307



1 OUTFALL DETAIL

1" = 4'-0"

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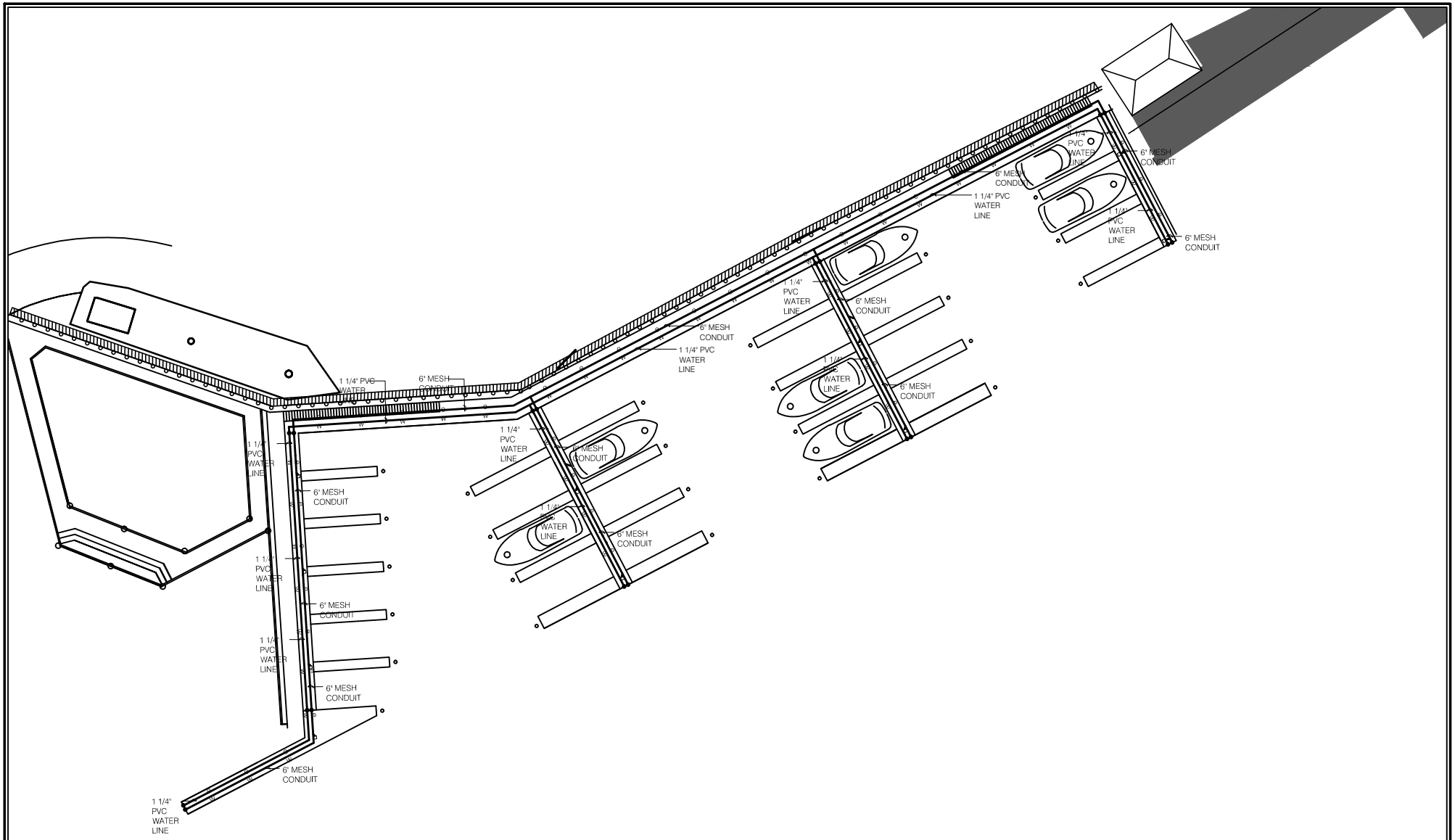
GLEN COVE CREEK WATERFRONT REDEVELOPMENT PROJECT

OUTFALL DETAIL

CITY OF GLEN COVE
NASSAU COUNTY, NEW YORK

SHEET NUMBER

A-308



1	ECOLOGICAL PIER AND SMALL VESSEL MARINA - UTILITY DESIGN
	1" = 50'-0"

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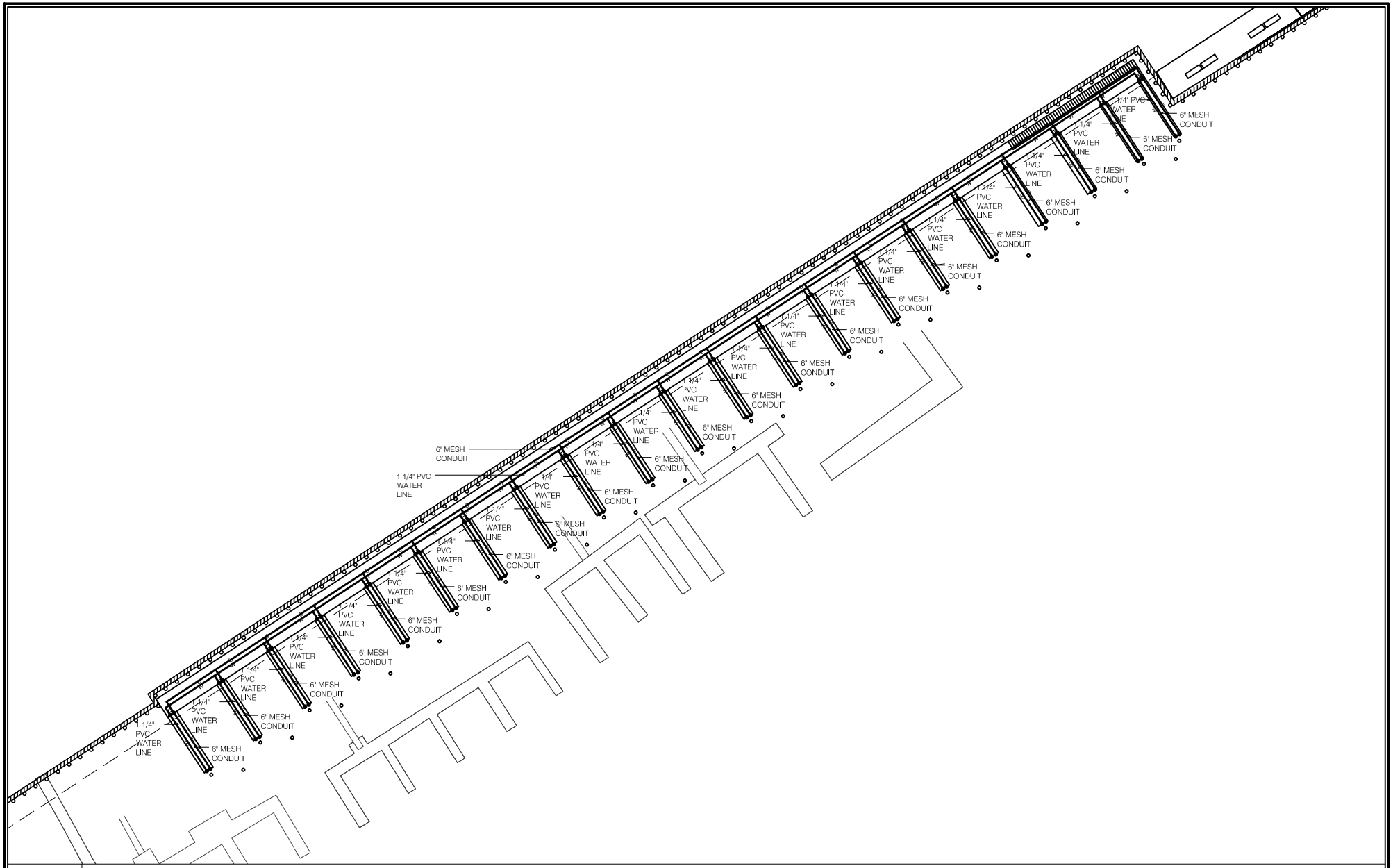
GLEN COVE CREEK WATERFRONT REDEVELOPMENT PROJECT

ECOLOGICAL PIER AND SMALL VESSEL MARINA

CITY OF GLEN COVE
NASSAU COUNTY, NEW YORK

SHEET NUMBER

E-100



1	ANGLAR'S CLUB MARINA - UTILITY DESIGN PLAN
	1" = 50'-0"

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Phone: 631.930.5337

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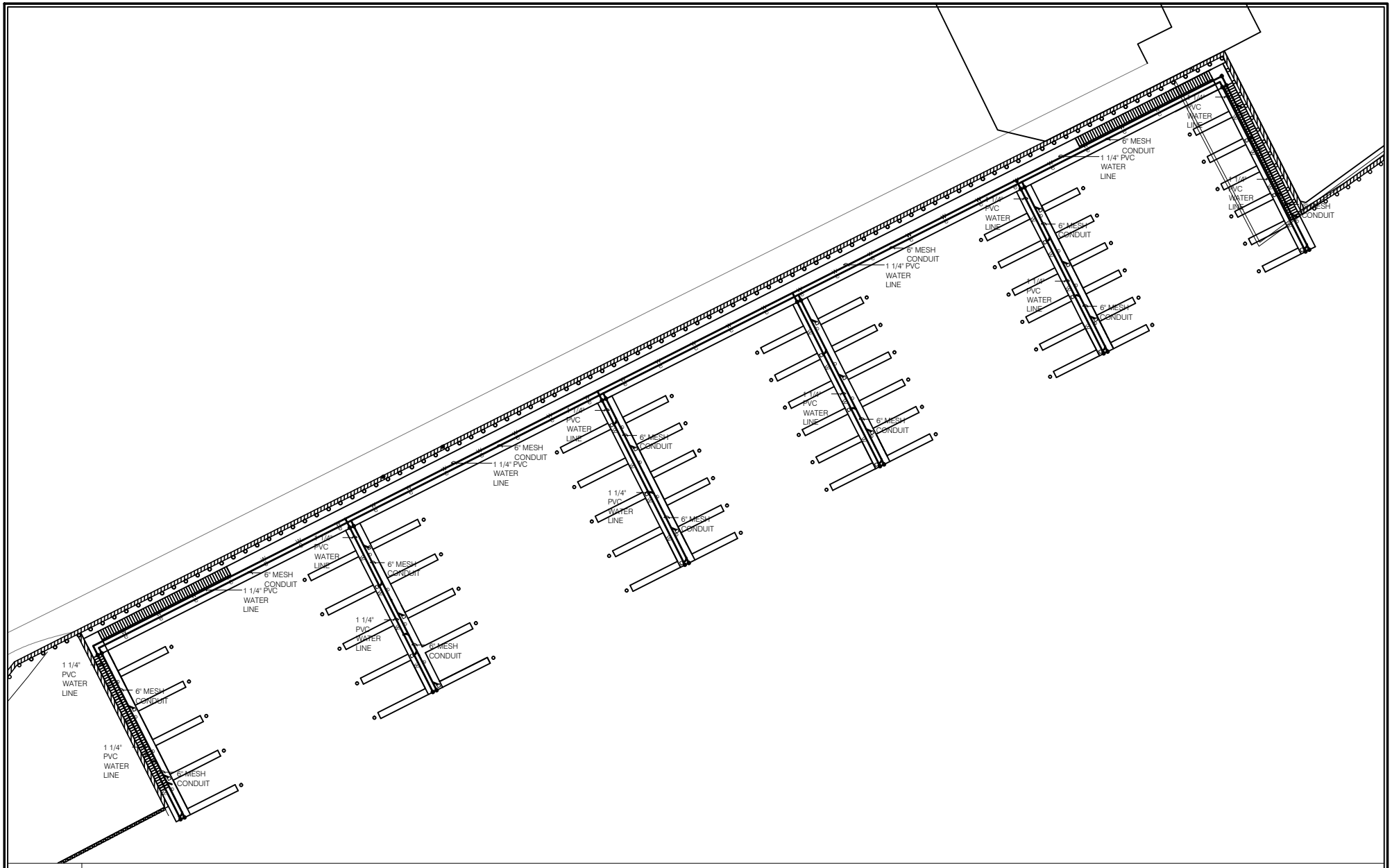
GLEN COVE CREEK WATERFRONT REDEVELOPMENT PROJECT

ANGLAR'S CLUB MARINA

CITY OF GLEN COVE
NASSAU COUNTY, NEW YORK

SHEET NUMBER

E-101



1	TRANSIENT MARINA - UTILITY DESIGN PLAN
	1" = 50'-0"

Advanced American Engineering PLLC.
445 Broad Hollow Road
Suite 25, Melville, NY 11747
Phone: 631.930.5337

DRAFTING
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Cedarhurst, New York
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GLEN COVE CREEK WATERFRONT REDEVELOPMENT PROJECT

TRANSIENT MARINA

CITY OF GLEN COVE
NASSAU COUNTY, NEW YORK

SHEET NUMBER

E-102

Appendix B – Radiation Monitoring Plans for Glen Isle Waterfront Development (PW Grosser, December 2013) and Glen Cove Ferry Terminal (Site Management Plan: Glen Cove Ferry Terminal, June 2009)

GLEN ISLE WATERFRONT REDEVELOPMENT
GLEN COVE, NEW YORK

RADIATION MONITORING PLAN

PREPARED FOR:

RXR-Glen Isle Partners, LLC
625 RXR Plaza
Uniondale, NY 11556

PREPARED BY:

P.W. Grosser Consulting, Inc.
630 Johnson Avenue, Suite 7
Bohemia, New York 11716
Phone: 631-589-6353
Fax: 631-589-8705

James P. Rhodes, CPG, Senior Vice President jimr@pwgrosser.com
Derek Ersbak, Project Manager dereke@pwgrosser.com

PWGC Project Number: RGI 1304

DECEMBER 2013

TABLE OF CONTENTS

LIST OF ACRONYMS

cpm	Counts per Minute
EPA	United States Environmental Protection Agency
FS	Feasibility Study
HPFT	Health Physics Field Technician
HPSO	Health Physics Safety Officer
MARSSIM	Multi-Agency Radiation Survey and Site Investigation Manual
MDC	Minimum Detectable Concentrations
m/s	Meters per Second
NaI	Sodium Iodide
NYSDEC	New York State Department of Environmental Conservation
pCi/g	Picocuries per Gram
RMP	Radiation Monitoring Plan
RI	Remedial Investigation
SMP	Site Management Plan

PROJECT: Glen Isle Waterfront Redevelopment Project. The project will include an investigation to document current subsurface condition at the Glen Isle Waterfront Redevelopment site for the purposes of characterizing the site for subsequent insurance coverage and as a condition of closing on the property.

This form indicates the review and acceptance of the document listed below by a Certified Health Physicist.

THE FOLLOWING DOCUMENT(S) HAVE BEEN REVIEWED AND ACCEPTED:

- Radiation Monitoring Plan – Glen Isle Waterfront Redevelopment

PREPARED FOR:
New York State Department of Environmental Conservation
Division of Environmental Remediation
Bureau E, 12th Floor
625 Broadway
Albany, New York 12233-7017

PREPARED ON BEHALF OF
RXR-Glen Isle Partners, LLC
625 RXR Plaza
Uniondale, New York 11556

PREPARED BY:
P.W. Grosser Consulting, Inc.
630 Johnson Avenue, Suite 7
Bohemia, New York 11716

REVIEWED & ACCEPTED BY:
Dennis M. Quinn, CHP
3 Shadow Lane
Hopewell Junction, New York 12533

Dennis M. Quinn 12/13/2013

Dennis M. Quinn, CHP Date

1.0 INTRODUCTION

This Radiation Monitoring Plan (RMP) has been prepared in accordance with the *Multi-Agency Radiation Survey and Site Investigation Manual, Revision 1* (EPA, August 2000 and June 2001 updates) (MARSSIM), and with the Site Management Plans (SMP) for the Glen Cove Ferry Terminal and Li Tungsten Sites in Glen Cove, NY: *Site Management Plan, Captain's Cove Site* (Dvirka and Bartilucci, June 2010) and *Site Management Plan for Li Tungsten Site, Glen Cove, NY* (Dvirka and Bartilucci, May 2012). These SMPs provide additional background information, site descriptions, redevelopment plans and soil management specifications for each of the Sites.

This RMP will be implemented during a Pre-Construction Confirmatory Data Gap Subsurface Investigation at the Glen Isle Waterfront Redevelopment Site by the Contractor's Health Physics Field Technician (HPFT) in coordination with the Consultant's Field Engineer. All parties entering the site, including representatives of the United States Environmental Protection Agency (EPA), New York State Department of Environmental Conservation (NYSDEC) and or the City of Glen Cove, are required to comply with this RMP. The RMP may be revised based upon radiation levels measured in the field after earthwork or excavation activities have been initiated. Any proposed changes must be reviewed and approved by the Consultant Health Physics Safety Officer (HPSO) (or their designee) and the NYSDEC.

The NYSDEC will be notified at a minimum of 15 days prior to earthwork or excavation activities.

1.1 Purpose and Scope

In accordance with past remedial efforts summarized in the SMPs, radioactive soils were previously removed from areas on and/or adjacent to the Captain's Cove and Li Tungsten Sites and the excavations were backfilled with clean soil. The purpose of this RMP is to address radiation monitoring activities to be performed during the - Construction Confirmatory Data Gap Subsurface Investigation which include test pits, geotechnical borings, and subsurface soil and groundwater sampling. Specifically, soil disturbed during investigative activities will be monitored for radiation to:

- Segregate soil/waste that may contain radioactive contamination; and
- Protect onsite workers from potential exposure to dangerous levels of radiation.

2.0 RADIATION MONITORING PLAN

The monitoring protocol specified in subsequent sections includes the identification of minimum qualifications for the Contractor's HPFT, selection of appropriate radiation monitoring instruments, instrument calibration, radiation monitoring methodology and establishing background radiation levels at both the Captain's Cove and Li Tungsten Sites. Any radioactive waste identified as a result of monitoring will be segregated and managed by the Contractor as described in the SMPs.

2.1 Health Physics Field Technician Qualifications

Radiation monitoring will be performed by the Contractor's HPFT. The Contractor's HPFT qualifications will be reviewed by the Consultant. At a minimum, the candidate HPFT will have successfully completed Radiation Worker Training, have 2 years of experience performing field gamma radiation monitoring, have experience with the monitoring instruments specified in Section 2.2 (including routine operation and performing instrument field

checks), have demonstrated experience in measuring site background radiation levels and have experience with the collection, handling and shipment of samples for radiological analyses.

2.2 Selection of Radiation Monitoring Instrument

The selection of radiation monitoring equipment was based on the type of radiation in the Li Tungsten mill tailings previously located on and/or adjacent to the Sites. The mill tailings, which contained uranium and thorium, were generated during mineral processing of tungsten ores at the Li Tungsten Site. The tailings also contained daughter products, including isotopes of thorium, uranium, radium, and several other products of the natural decay chains. These radioactive elements produce a mixture of alpha, beta, and gamma radiation. Although alpha and beta radiations are produced by the radionuclides in soil that was present on and/or adjacent to the Sites, these radiations have low penetrating ability, and they are shielded by the first centimeter of soil. This low penetrating ability for alpha and beta cause these radiations to be very difficult to detect by direct measurement. Accordingly, radiation monitoring equipment capable of detecting gamma radiation (a highly penetrating radiation) is specified. For this purpose, a Ludlum™ Model 2221 count-rate meter and scaler (or equivalent) equipped with a 100 cm^3 (2" x 2") sodium iodide (NaI) detector for walkover surveys and a Ludlum™ Model 3 or 12 count-rate meter and scaler (or equivalent) equipped with a 44-9 frisker probe for screening of core samples are specified.

2.3 Radiation Instrument Calibration and Operation

The radiation rate meter/scaler will be calibrated by the supplier in accordance with the instrument manufacturer's specifications. A source traceable to the National Institute for Standards and Technology (NIST) will be used for calibration. This calibration, in combination with manufacturer developed energy response curves, will be used to characterize instrument response. The response of the meter will be evaluated with a check source daily before and after each survey. Source check results will be recorded in the field log book. All supplier calibration records and source check results will be maintained onsite throughout the duration of redevelopment activities. During monitoring, the count-rate meter will be operated in the audio mode to aid in detecting radiation count rate changes above 2-times background. The serial numbers and calibration dates will be recorded in the results report.

2.4 Establishing Site Background

PWGC has established a background radiation level in counts per minute (cpm) in accordance with PWGC's Radiation Monitoring Plan for Captain's Cove and Li Tungsten dated March 2013.

On May 8, 2013, PWGC mobilized to the site to perform test pits in the area of the bulkhead on the Captain's Cove site to inspect current condition of the bulkhead tiebacks. Prior to performing work onsite, a gamma survey for background determination was performed at the wildlife preserve that borders the property in the up-gradient direction. The preserve was found to have similar geologic properties and soil types similar to Li Tungsten and Captain's Cove sites.

A Ludlum™ Model 2221 count-rate meter and scaler equipped with a 100 cm^3 (2" x 2") sodium iodide (NaI) detector was utilized. The meter was standardized utilizing the accompanying cesium-137 check source (5µCi). In order to establish background, 20 readings (one minute static counts) were collected from the Gravies' Point

Preserve, Trail 5 over an approximate area of one acre. Based upon the readings, a range of 6,390 to 7,915 counts per minute and a mean of 7,324 cpm has been established as background. Two times background, 14,648 counts per minute, will be utilized as a decision factor for soil screening purposes during the investigation.

Prior to commencing work, a background check will be performed. The background check will include performing one minute static counts at three locations in the Garvies' Point Preserve. The background check should be within 10% of the previous determined value. If it is greater than 10%, the full site background determination will be performed.

In addition to the overall site background, a one minute static count will be taken prior to the start of work at each excavation location. This reading will be recorded.

2.5 Radiological Walkover Survey/Scan

Prior to the installation of soil borings and test pits on the Li Tungsten and Captain's Cove Sites a radiological walkover survey/scan will be completed. The survey will consist of screening of a discrete area centered around the proposed soil boring or test pit and will measure 10 feet by ten feet for soil borings and twenty feet by twenty feet for test pits. The protocol is detailed below.

At each survey location a 100% scan will be performed using a Ludlum™ Model 2221 count-rate meter and scaler (or equivalent) equipped with a 100 cm^3 (2" x 2") sodium iodide (NaI) detector. 100% scan is defined as walking at 0.5 meters/second and moving the probe in a serpentine motion. The technician will follow one meter-wide lanes over each entire survey area. In addition, a check of areas with elevated count rates with a collimated 2" x 2" NaI detector may be necessary to locate the source of the high readings, if any. The walkover survey for each survey area will be recorded on a radiological survey form.

2.5 Radiation Monitoring Methodology

The following radiation monitoring protocol was developed to identify radioactive material that may be encountered during the investigation.

2.5.1 Personal Protective Equipment

Personal protective equipment will include the use of Level D personal protective equipment (PPE) consisting of steel toe boots, hard hats, work clothes, and nitrile gloves. Tyveks will be used if soil is discovered above two times background.

2.5.2 Test Pit Excavation Screening

At each location a backhoe or equivalent will be utilized to perform the test pit. Prior to the excavation, 10-mil polyethylene sheeting, sufficiently large to hold the anticipated excavated soil will be laid on the ground in the area where the excavated soil will be placed. Each test pit will be performed in two foot lifts and placed on the polyethylene sheeting in individual piles.

The monitoring protocol described below was designed to effectively detect gamma radiation to a depth of approximately 6 inches below the top of the surface being monitored. Based on this assumption, the monitoring will be performed on two-foot lifts of soil and will result in a monitored volume percent of approximately 25

percent. Screening will be performed using a Ludlum™ Model 2221 count-rate meter and scaler (or equivalent) equipped with a 100 cm^3 (2" x 2") sodium iodide (NaI) detector.

Radiation monitoring will entail scanning with the NaI detector and the count-rate meter detector across the floor of the excavation after each two-foot lift of material is excavated. If survey at the floor of the excavation is not practical (e.g., narrow trench or core samples), then the soil can be surveyed after removal. If removed soil is surveyed, it must be spread to a depth of 2 feet or less. During monitoring, the detector will be held approximately 3 inches or less above the surface being scanned. The detector will be moved over the surface being scanned at a rate not to exceed approximately 0.5 meters per second (m/s). This scan rate will allow the collection of a reasonable number of counts per scan. If a detection greater than two times background is observed, the two-foot lift will be spread into six inch deep layers and rescanned. A general description of the material that was scanned (e.g., sand clay, peat, waste, etc.) will also be recorded.

2.5.3 Soil Core Screening

Prior to performing soil borings, 10-mil polyethylene sheeting, sufficiently large to hold the anticipated number of soil cores will be laid on the ground in the area where the soil borings will be performed.

The monitoring protocol described below was designed to effectively detect gamma radiation within soil cores. Screening will be performed using a Ludlum™ Model 3 or 12 count-rate meter and scaler (or equivalent) equipped with a 44-9 frisker probe.

Radiation monitoring will entail scanning with the 44-9 probe and the count rate meter detector across the top of each sediment core in two foot long intervals. During monitoring, the detector will be held approximately 1 inch or less above the surface being scanned. The detector will be moved over the surface being scanned at a rate not to exceed approximately 5 centimeters per second (cm/s). This scan rate will allow the collection of a reasonable number of counts per scan. The readings will be included on the soil boring logs.

2.5.4 Screening Criteria

For the soil surface or excavation screening using the NaI detector, if count rates exceed 2-times background (as developed in 2.4.1, above), then the provisions specified in the SMPs will be implemented. In general, the SMPs require that excavated material that exceeds radiological screening criteria shall be stockpiled separately and the NYSDEC shall be notified. In addition, the excavated material shall be sampled and analyzed in accordance with Section 2.6 below. The location, including global positioning system (GPS) coordinates, of the hot spot and the maximum and minimum count rates observed (rounded to the nearest 100 cpm) will be recorded in the bound field notebook. Hot spot locations will be marked with paint, flags, or other marker.

Radiation levels measured up to two times the Site background is not considered to be a hazard. Radiation measurements in excess of approximately 2-times background will result in controlled disposition of the soil; however, it is not expected to be at a level that will be hazardous to the onsite workers. Note that past surveys of excavations onsite have not detected levels above two times background. As a protective measure against radiation dose to onsite workers, radioactivity above 1 mrem/hr (cpm equivalent to be calculated after instrument calibration) will be considered a potential radiation worker dose risk. Soil that exhibits readings above

background but below the threshold for radiation worker dose risk will be handled as described in the SMPs, as there is no significant exposure risk at these levels.

2.6 Soil Sampling and Radiological Analysis

For any soil that is identified as exceeding the criteria of two times the Site background, a minimum of one sample of at least 400 grams shall be taken per stockpile, where the individual stockpile does not exceed 500 cubic yards. Samples shall be analyzed by gamma spectroscopy using Method EML-HASL-300 or equivalent. The spectroscopy should be specified to identify gamma emitting radionuclides associated with the uranium and thorium decay chains. The count times, sample sizes, and geometry should be able to produce Minimum Detectable Concentrations (MDC) of 0.1 picocuries per gram (pCi/g) for Ac-228, Pb-212, Bi-212, Tl-208, Ra-226/U-235, Pb-214, and Bi-214. For U-235, the MDC should be 1 pCi/g or better, and for Pa-234m, the MDC should be 10 pCi/g. Samples to be analyzed for radionuclides shall be dried samples and will be analyzed before activities of the Ra-226 and its daughter products have returned to equilibrium. If there are indications of readings in excavations that exceed the criteria of two times background, then confirmation sampling and analysis will be performed in accordance with NYSDEC guidance in DER-10 (May 2010).

Confirmation samples shall be collected in excavations to document any contamination that remains in place in accordance with the SMPs. Confirmation samples shall be analyzed by gamma spectroscopy using Method EML-HASL-300, or equivalent, to identify gamma emitting radionuclides associated with uranium and thorium decay chains.

3.0 REFERENCES

Dvirka and Bartilucci, 2010. *Site Management Plan, Captains Cove Site*, June 2010.

Dvirka and Bartilucci, 2012. *Site Management Plan for Li Tungsten Site, Glen Cove, NY*, May 2012.

EPA, 2000 and 2001. *Multi-Agency Radiation Survey and Site Investigation Manual, Revision 1*, August 2000 and June 2001 updates.

– D R A F T –

SITE MANAGEMENT PLAN

GLEN COVE FERRY TERMINAL
CITY OF GLEN COVE
NASSAU COUNTY, NEW YORK

Prepared for:

CITY OF GLEN COVE INDUSTRIAL DEVELOPMENT AGENCY

JUNE 2009

APPENDIX B

RADIATION MONITORING PLAN

RADIATION MONITORING PLAN

Captain's Cove Condominium
Inactive Hazardous Waste Disposal Site Remedial Action
(Site No. 1-30-032)
Glen Cove, New York

January 6, 2000

Prepared for:

The City of Glen Cove
Glen Cove, New York

Prepared by:

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CONTENTS

FIGURE

1.0 GENERAL

This Radiation Monitoring Plan (RMP) has been prepared in accordance with the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM [NUREG Document No. 1575 and USEPA Document No. EPA-402-R-97-016]) and Roux Associates, Inc. (Roux Associates) Standard Operating Procedures (SOPs). It addresses radiation monitoring activities to be performed during the remedial action at the Captain's Cove Site in the City of Glen Cove, New York (Site). The RMP will be implemented during work at the Site by the Contractor's Health Physics Field Technician in coordination with the Consultant's Field Engineer.

Compliance with this RMP is required for all parties who enter this Site (including representatives of the United States Environmental Protection Agency (USEPA), New York State Department of Environmental Conservation (NYSDEC) and/or the City of Glen Cove). The content of this RMP may undergo revision based upon radiation levels measured in the field after the remediation activities have been initiated. Any changes proposed must be reviewed and approved by the City Consultant's Health Physics Safety Officer (HPSO) (or their designee) and the NYSDEC.

Scope of Work

Based on the results of the Site remedial investigation (RI), buried solid waste across the central portion of the Captain's Cove Site was identified. The subsequent feasibility study (FS) focused on remedial actions to address this buried waste. The scope of Work for implementation of the selected remedy in the ROD based on this FS, includes the following specific components.

- This remedy will consist of excavating the landfill and separating the waste stream into various components including: solid waste, hazardous waste, construction and demolition (C&D) debris, and radiological waste.
- The latter three waste streams will be disposed of offsite.
- The solid waste would be sorted according to size and the smaller material (<1 inch) will be returned to the excavation if appropriate after analysis.
- All of the sorted material (<1 inch) returned to the excavation will be covered by two feet of general fill or other suitable cover material.

- A deed restriction will prevent the site from being used for residential purposes (i.e., long-term single or multi-family housing). Additionally, the deed restriction will include controls to provide for the protection of public health during future subsurface activities.

2.0 RADIATION MONITORING PLAN

Soil excavated during the remediation at the Captain's Cove Site will be monitored for radiation to:

- segregate soil/waste that may contain radioactive contamination (if any); and
- to protect on-site workers from potential exposure to dangerous levels of radiation.

The radiation monitoring will be performed by the Contractor's Health Physics Field Technician (HPFT) under the direction of the Consultant's Field Engineer and Health Physics Safety Officer (HPSO). Any radioactive waste identified as a result of monitoring will be segregated and managed by the Contractor as described in the Contractor's Construction Contingency Plan (CCP).

This monitoring protocol, summarized in Figure 1, entails identification of minimum qualifications for the Contractor's HPFT, selection of suitable monitoring instruments, instrument calibration, monitoring methodology, and establishing background radiation levels at the Site. Each of these considerations is described below.

2.1 Qualifications Health Physics Field Technician

The radiation monitoring will be performed by the Contractor's HPFT. The Contractor's HPFT qualifications will be reviewed by the Consultant and the NYSDEC Health Physicist. At a minimum, the candidate HPFT will have successfully completed Radiation Worker Training, have 2 to 4 years experience performing field gamma radiation monitoring, have experience with the monitoring instruments specified below (including calibration, routine operation, and performing field instrument checks), have demonstrated experience in establishing site background radiation levels, and have experience collecting, handling, and shipping samples for radiological analyses.

2.2 Selection of Radiation Monitoring Instrument

The selection of a radiation monitoring tool was based on the type of radiation in the Li Tungsten mill tailings located adjacent to the Site. The radiation contamination is primarily due to the presence of uranium and thorium contained in mill tailings generated during mineral processing

of tungsten ores at the former Li Tungsten Site, located on Herb Hill Road, in Glen Cove, New York. The tailings also contain daughter products, including radium, from the radioactive decay of the parent radionuclides. Radioactivity is produced during the subsequent decay of the daughter products until a stable isotope is achieved. During decay, radioactivity in the form of particles and energy is emitted from the radionuclide. In brief, the decay processes are specific to the individual isotopes, and thus, each decay process produces a specific form of radioactivity (e.g., alpha, beta and gamma radiation). Uranium produces alpha and gamma radiation and is the primary contributing radionuclide to the radioactivity in the Li Tungsten tailings. The other radionuclides, including thorium and radium, also emit gamma and or alpha radiation. Although alpha radiation is produced by the radionuclides present in soil adjacent to the Site, it is a low energy emission and, therefore, is absorbed by most sediments including soil. The ease of absorption by any material present between the source of the radioactivity and the count-rate meter will minimize and may prevent detection of the presence of alpha radiation. Accordingly, a radiation monitoring tool capable of detecting gamma radiation (a high energy radiation) is specified. For this purpose a Ludlum™ Model 2221 count-rate meter and scaler equipped with a 100 cm^2 (2-inch by 2-inch) sodium iodide (NaI) detector is specified.

2.3 Instrument Calibration and Operation

The radiation rate meter/scaler will be calibrated by the supplier in accordance with the instrument manufacturer's specifications. A range of radioactive NBS source materials standards (or traceable to NBS standards) will be used for calibration. A range of response configurations will be used during the calibration process. The response of the meter will be checked throughout each day using the source provided with the instrument. Source checks will be recorded in the field log book. All supplier calibration records and daily response checks will be maintained on-site throughout the duration of the remediation activities. During monitoring the count-rate meter will be operated in the audio mode to aid in detecting radiation above 2-times background.

2.4 Establishing Site Background

Based on the results of the Remedial Investigation/Feasibility Study (RI/FS), and the USEPA Focused Feasibility Study (FFS), the background radiation at the site ranged up to approximately 3,750 cpm. As background at the Site varies according to the media measured (e.g., different

soil types etc.) at the onset of the excavation project, the Contractor's HPFT under the direction of the Consultant's HPSO will identify background radiation on soil samples collected around the Site where the absence of non-anthropogenic radioactive material has been confirmed. Measurements on the soil types will be recorded in the field log book. The background radiation values measured will be used in conjunction with previously measured values as a guide to distinguishing radiation readings due to naturally-occurring radiation from those produced by radioactive waste deposited adjacent to the Site.

2.5 Radiation Monitoring Methodology

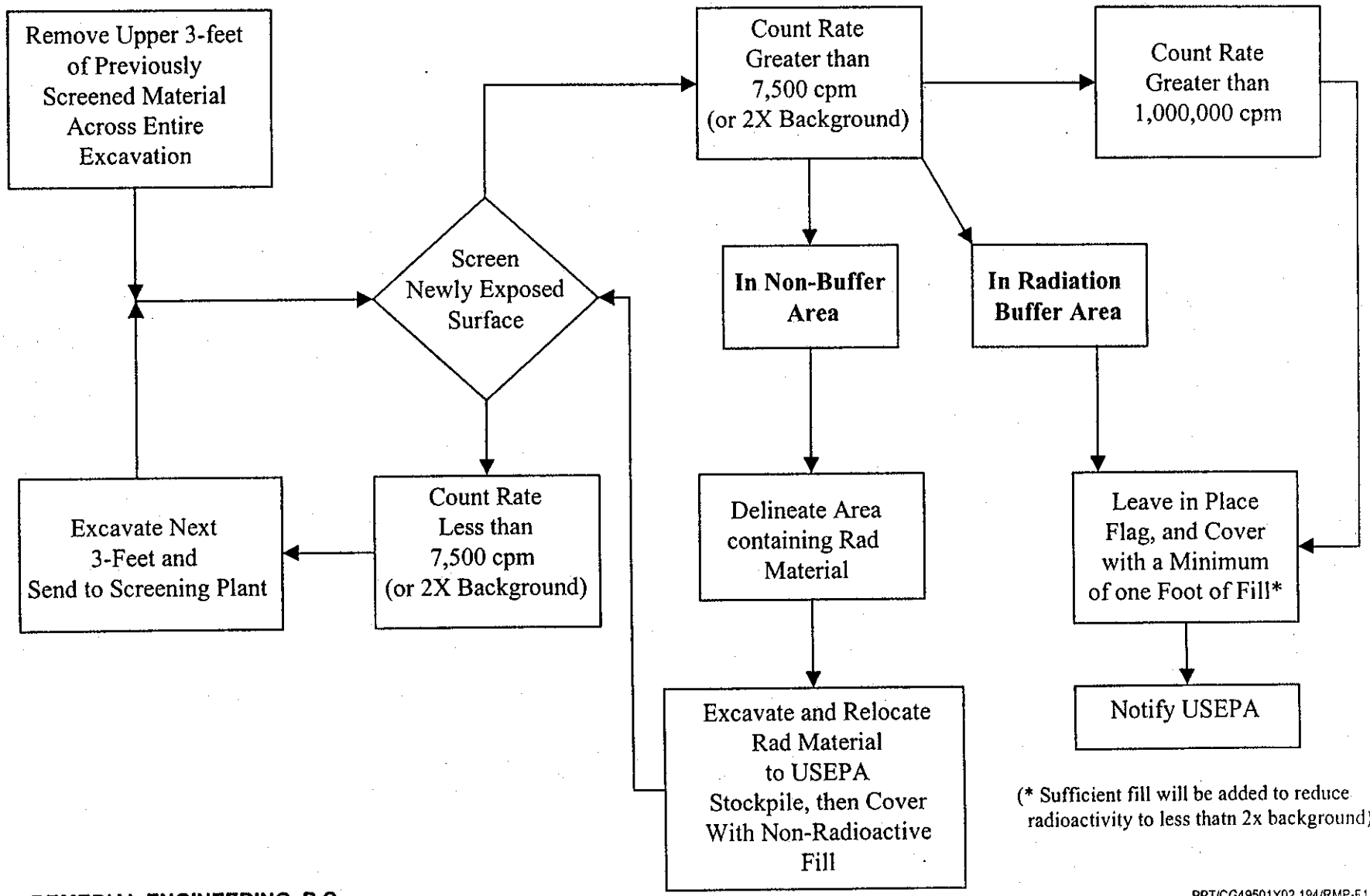
The following radiation monitoring protocol was developed to identify radioactive material that may be encountered during remediation. The monitoring protocol described below was designed to effectively 'see' gamma radiation in approximately 10 to 15 percent, by volume, of the material excavated. In keeping with this goal, it is assumed that the meter selected for the field monitoring will 'see' gamma radiation to a depth of approximately 6-inches below the top of the surface being monitored. Based on this assumption, the monitoring will be performed on three-foot lifts of soil and will result in a monitored volume percent of approximately 17 percent. Note that the upper three feet of the area to be remediated will initially be excavated with no additional radiation monitoring. No monitoring of this upper soil horizon is warranted as the entire surface of the Site has been monitored extensively for radioactivity by the NYSDEC in 1997 and Roux Associates during the RI/FS completed during 1998. Soil horizons exposed by subsequent excavation activities will be monitored by a qualified personnel using the meter, method and scan rate specified below.

Monitoring will entail scanning the count-rate meter detector across the floor of the excavation exposed after each three foot lift of material is excavated. Approximately each foot of the excavation floor will be monitored for radiation. During monitoring the detector will be held at approximately 3-inches or less above the surface being scanned. The detector will be moved over the surface being scanned at a rate not to exceed approximately 0.5 meters per second (m/s) as per the MARSSIM (NUREG Guidance Document 1575). This scan rate will allow the collection of a reasonable number of counts per scan. If count rates exceed 2-times background, then the provisions in the Contractor's CCP will be implemented. In general, the Contractor's CCP for radiation hot spots entail recording the location of the hot spot and the maximum and

minimum number of count rates observed (rounded to the nearest 100 cpm) in the bound field notebook. A general description of the material that was scanned (e.g., sand clay, peat, waste, etc.) will also be recorded.

Radioactivity measured above the Site background is considered a potential exposure hazard. However, without exception radiation measurements in excess of approximately 2-times background (i.e., 7,500 counts per minute [cpm]) have not been measured in the excavation footprint. As a protective measure against acute radiation exposure to on-site workers, radioactivity above 100 mrem (or approximately 1,000,000 cpm) will be considered a potential acute exposure risk. Soil that exhibits readings above background but below the threshold for acute exposure risk will be handled as described in the Contractor's CCP as there is no significant exposure risk at these levels.

Figure 1 - Radiation Monitoring Plan Flow Chart for Radioactivity Screening of Soil During Excavation at the Captain's Cove Condominium Inactive Hazardous Waste Disposal Site, Glen Cove, New York



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PPT/CG49501Y02.194/RMP-F1

Appendix C – Sediment Sampling Parameters from TOGS 5.1.9 and 6NYCRR Part 375

Table 2 Sediment Quality Threshold Values for Dredging, Riparian or In-water Placement

Threshold values are based on known and presumed impacts on aquatic organisms/ecosystem. Where fresh water and marine threshold values differ sufficiently, the marine value is presented in parentheses. All concentrations are in mg/kg dry weight.

Compound	Class A	Class B	Class C	Derivation Code
Metals (mg/kg)				
Arsenic	< 14 (8.2)	(8.2) 14 - 53	> 53	1
Cadmium	< 1.2	1.2 - 9.5	> 9.5	1
Copper*	< 33	33 - 207 (270)	> 207 (270)	1
Lead	< 33 (47)	33 (47) - 166 (218)	> 166 (218)	1
Mercury+	< 0.17	0.17 - 1.6 (1.0)	> 1.6 (1.0)	1
PAHs and Petroleum-Related Compounds (mg/kg)				
Benzene	< 0.59	0.59 - 2.16	> 2.16	2
Total BTEX*	< 0.96	0.96 - 5.9	> 5.9	2
Total PAH[1]	< 4	4 - 35 (45)	> 35 (45)	1
Pesticides (mg/kg)				
Sum of DDT+DDD+DDE+	< 0.003	0.003 - 0.03	> 0.03	2
Mirex*+	< 0.0014	0.0014 - 0.014	> 0.014	2
Chlordane*+	< 0.003	0.003 - 0.036	> 0.036	1
Dieldrin	< 0.11	0.11 -0. 48	> 0.48	2
Chlorinated Hydrocarbons (mg/kg)				
PCBs (sum of aroclors)[2]	< 0.1	0.1 - 1	> 1	3
2,3,7,8-TCDD*[3] (sum of toxic equivalency)	< 0.0000045	0.0000045 - 0.00005	> 0.00005	4

+ Threshold values lower than the Method Detection Limit are superseded by the Method Detection Limit. (See Table 1)
* Indicates case-specific parameter (see Chapter II, Section A) .
[1]For Sum of PAH, see Appendix E
[2]For the sum of the 22 PCB congeners required by the USACE NYD or EPA Region 2, the sum must be multiplied by two to determine the total PCB concentration.
[3]TEQ calculation as per the NATO - 1988 method (see Appendix D)

Note: The proposed list of analytes can be augmented with additional site specific parameters of concern. Any additional analytes suggested will require Division approved sediment quality threshold values for the A, B and C classifications.

(b) Restricted use soil cleanup objectives.

Table 375-6.8(b): Restricted Use Soil Cleanup Objectives

Contaminant	CAS Number	Protection of Public Health				Protection of Ecological Resources	Protection of Ground-water
		Residential	Restricted-Residential	Commercial	Industrial		
Metals							
Arsenic	7440-38-2	16[f]	16[f]	16[f]	16[f]	13[f]	16[f]
Barium	7440-39-3	350[f]	400	400	10,000 [d]	433	820
Beryllium	7440-41-7	14	72	590	2,700	10	47
Cadmium	7440-43-9	2.5[f]	4.3	9.3	60	4	7.5
Chromium, hexavalent [h]	18540-29-9	22	110	400	800	1[e]	19
Chromium, trivalent [h]	16065-83-1	36	180	1,500	6,800	41	NS
Copper	7440-50-8	270	270	270	10,000 [d]	50	1,720
Total Cyanide [h]		27	27	27	10,000 [d]	NS	40
Lead	7439-92-1	400	400	1,000	3,900	63[f]	450
Manganese	7439-96-5	2,000[f]	2,000[f]	10,000 [d]	10,000 [d]	1600[f]	2,000[f]
Total Mercury		0.81[j]	0.81[j]	2.8[j]	5.7[j]	0.18[f]	0.73
Nickel	7440-02-0	140	310	310	10,000 [d]	30	130
Selenium	7782-49-2	36	180	1,500	6,800	3.9[f]	4[f]
Silver	7440-22-4	36	180	1,500	6,800	2	8.3
Zinc	7440-66-6	2200	10,000 [d]	10,000 [d]	10,000 [d]	109[f]	2,480
PCBs/Pesticides							
2,4,5-TP Acid (Silvex)	93-72-1	58	100[a]	500[b]	1,000[c]	NS	3.8
4,4'-DDE	72-55-9	1.8	8.9	62	120	0.0033 [e]	17
4,4'-DDT	50-29-3	1.7	7.9	47	94	0.0033 [e]	136
4,4'- DDD	72-54-8	2.6	13	92	180	0.0033 [e]	14
Aldrin	309-00-2	0.019	0.097	0.68	1.4	0.14	0.19
alpha-BHC	319-84-6	0.097	0.48	3.4	6.8	0.04[g]	0.02
beta-BHC	319-85-7	0.072	0.36	3	14	0.6	0.09
Chlordane (alpha)	5103-71-9	0.91	4.2	24	47	1.3	2.9

Table 375-6.8(b): Restricted Use Soil Cleanup Objectives

Contaminant	CAS Number	Protection of Public Health				Protection of Ecological Resources	Protection of Ground-water
		Residential	Restricted-Residential	Commercial	Industrial		
delta-BHC	319-86-8	100[a]	100[a]	500[b]	1,000[c]	0.04[g]	0.25
Dibenzofuran	132-64-9	14	59	350	1,000[c]	NS	210
Dieldrin	60-57-1	0.039	0.2	1.4	2.8	0.006	0.1
Endosulfan I	959-98-8	4.8[i]	24[i]	200[i]	920[i]	NS	102
Endosulfan II	33213-65-9	4.8[i]	24[i]	200[i]	920[i]	NS	102
Endosulfan sulfate	1031-07-8	4.8[i]	24[i]	200[i]	920[i]	NS	1,000[c]
Endrin	72-20-8	2.2	11	89	410	0.014	0.06
Heptachlor	76-44-8	0.42	2.1	15	29	0.14	0.38
Lindane	58-89-9	0.28	1.3	9.2	23	6	0.1
Polychlorinated biphenyls	1336-36-3	1	1	1	25	1	3.2
Semivolatiles							
Acenaphthene	83-32-9	100[a]	100[a]	500[b]	1,000[c]	20	98
Acenapthylene	208-96-8	100[a]	100[a]	500[b]	1,000[c]	NS	107
Anthracene	120-12-7	100[a]	100[a]	500[b]	1,000[c]	NS	1,000[c]
Benz(a)anthracene	56-55-3	1[f]	1[f]	5.6	11	NS	1[f]
Benzo(a)pyrene	50-32-8	1[f]	1[f]	1[f]	1.1	2.6	22
Benzo(b)fluoranthene	205-99-2	1[f]	1[f]	5.6	11	NS	1.7
Benzo(g,h,i)perylene	191-24-2	100[a]	100[a]	500[b]	1,000[c]	NS	1,000[c]
Benzo(k)fluoranthene	207-08-9	1	3.9	56	110	NS	1.7
Chrysene	218-01-9	1[f]	3.9	56	110	NS	1[f]
Dibenz(a,h)anthracene	53-70-3	0.33[e]	0.33[e]	0.56	1.1	NS	1,000[c]
Fluoranthene	206-44-0	100[a]	100[a]	500[b]	1,000[c]	NS	1,000[c]
Fluorene	86-73-7	100[a]	100[a]	500[b]	1,000[c]	30	386
Indeno(1,2,3-cd)pyrene	193-39-5	0.5[f]	0.5[f]	5.6	11	NS	8.2
m-Cresol	108-39-4	100[a]	100[a]	500[b]	1,000[c]	NS	0.33[e]
Naphthalene	91-20-3	100[a]	100[a]	500[b]	1,000[c]	NS	12

Table 375-6.8(b): Restricted Use Soil Cleanup Objectives

Contaminant	CAS Number	Protection of Public Health				Protection of Ecological Resources	Protection of Ground-water
		Residential	Restricted-Residential	Commercial	Industrial		
o-Cresol	95-48-7	100[a]	100[a]	500[b]	1,000[c]	NS	0.33[e]
p-Cresol	106-44-5	34	100[a]	500[b]	1,000[c]	NS	0.33[e]
Pentachlorophenol	87-86-5	2.4	6.7	6.7	55	0.8[e]	0.8[e]
Phenanthrene	85-01-8	100[a]	100[a]	500[b]	1,000[c]	NS	1,000[c]
Phenol	108-95-2	100[a]	100[a]	500[b]	1,000[c]	30	0.33[e]
Pyrene	129-00-0	100[a]	100[a]	500[b]	1,000[c]	NS	1,000[c]
Volatiles							
1,1,1-Trichloroethane	71-55-6	100[a]	100[a]	500[b]	1,000[c]	NS	0.68
1,1-Dichloroethane	75-34-3	19	26	240	480	NS	0.27
1,1-Dichloroethene	75-35-4	100[a]	100[a]	500[b]	1,000[c]	NS	0.33
1,2-Dichlorobenzene	95-50-1	100[a]	100[a]	500[b]	1,000[c]	NS	1.1
1,2-Dichloroethane	107-06-2	2.3	3.1	30	60	10	0.02[f]
cis-1,2-Dichloroethene	156-59-2	59	100[a]	500[b]	1,000[c]	NS	0.25
trans-1,2-Dichloroethene	156-60-5	100[a]	100[a]	500[b]	1,000[c]	NS	0.19
1,3-Dichlorobenzene	541-73-1	17	49	280	560	NS	2.4
1,4-Dichlorobenzene	106-46-7	9.8	13	130	250	20	1.8
1,4-Dioxane	123-91-1	9.8	13	130	250	0.1[e]	0.1[e]
Acetone	67-64-1	100[a]	100[b]	500[b]	1,000[c]	2.2	0.05
Benzene	71-43-2	2.9	4.8	44	89	70	0.06
Butylbenzene	104-51-8	100[a]	100[a]	500[b]	1,000[c]	NS	12
Carbon tetrachloride	56-23-5	1.4	2.4	22	44	NS	0.76
Chlorobenzene	108-90-7	100[a]	100[a]	500[b]	1,000[c]	40	1.1
Chloroform	67-66-3	10	49	350	700	12	0.37
Ethylbenzene	100-41-4	30	41	390	780	NS	1
Hexachlorobenzene	118-74-1	0.33[e]	1.2	6	12	NS	3.2
Methyl ethyl ketone	78-93-3	100[a]	100[a]	500[b]	1,000[c]	100[a]	0.12

Table 375-6.8(b): Restricted Use Soil Cleanup Objectives

Contaminant	CAS Number	Protection of Public Health				Protection of Ecological Resources	Protection of Ground-water
		Residential	Restricted-Residential	Commercial	Industrial		
Methyl tert-butyl ether	1634-04-4	62	100[a]	500[b]	1,000[c]	NS	0.93
Methylene chloride	75-09-2	51	100[a]	500[b]	1,000[c]	12	0.05
n-Propylbenzene	103-65-1	100[a]	100[a]	500[b]	1,000[c]	NS	3.9
sec-Butylbenzene	135-98-8	100[a]	100[a]	500[b]	1,000[c]	NS	11
tert-Butylbenzene	98-06-6	100[a]	100[a]	500[b]	1,000[c]	NS	5.9
Tetrachloroethene	127-18-4	5.5	19	150	300	2	1.3
Toluene	108-88-3	100[a]	100[a]	500[b]	1,000[c]	36	0.7
Trichloroethene	79-01-6	10	21	200	400	2	0.47
1,2,4-Trimethylbenzene	95-63-6	47	52	190	380	NS	3.6
1,3,5- Trimethylbenzene	108-67-8	47	52	190	380	NS	8.4
Vinyl chloride	75-01-4	0.21	0.9	13	27	NS	0.02
Xylene (mixed)	1330-20-7	100[a]	100[a]	500[b]	1,000[c]	0.26	1.6

All soil cleanup objectives (SCOs) are in parts per million (ppm).
NS=Not specified. See Technical Support Document (TSD).

Footnotes

[a] The SCOs for residential, restricted-residential and ecological resources use were capped at a maximum value of 100 ppm. See TSD section 9.3.

[b] The SCOs for commercial use were capped at a maximum value of 500 ppm. See TSD section 9.3.

[c] The SCOs for industrial use and the protection of groundwater were capped at a maximum value of 1000 ppm. See TSD section 9.3.

[d] The SCOs for metals were capped at a maximum value of 10,000 ppm. See TSD section 9.3.

[e] For constituents where the calculated SCO was lower than the contract required quantitation limit (CRQL), the CRQL is used as the SCO value.

[f] For constituents where the calculated SCO was lower than the rural soil background concentration as determined by the Department and Department of Health rural soil survey, the rural soil background concentration is used as the Track 2 SCO value for this use of the site.

[g] This SCO is derived from data on mixed isomers of BHC.

[h] The SCO for this specific compound (or family of compounds) is considered to be met if the analysis for the total species of this contaminant is below the specific SCO.

[i] This SCO is for the sum of endosulfan I, endosulfan II, and endosulfan sulfate.

[j] This SCO is the lower of the values for mercury (elemental) or mercury (inorganic salts). See TSD Table 5.6-1.